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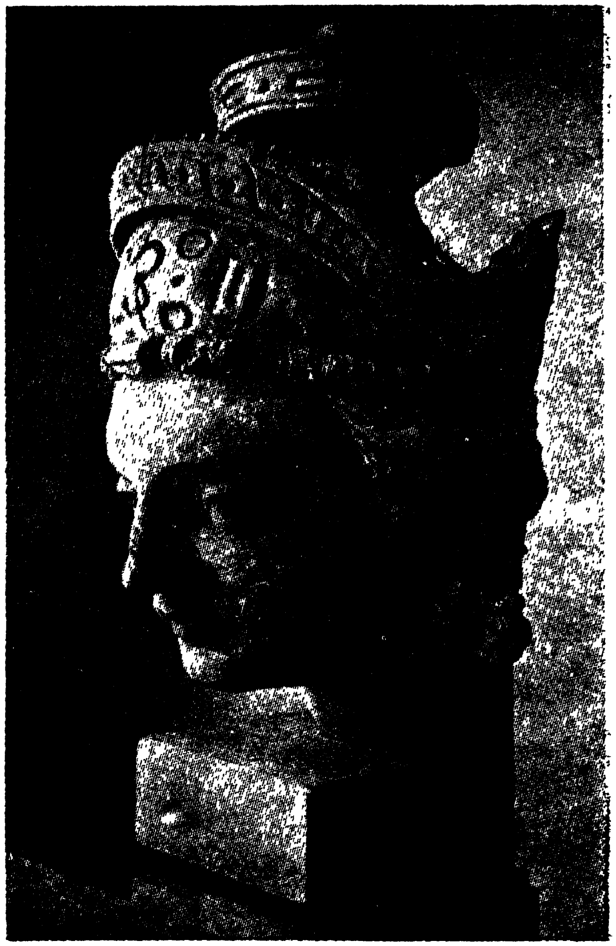

TERRA - COTTA
HEAD OF BODHISATTVA
From KĀLAWĀN
(See PP. 338-9, 470)

TAXILA

TAXILA

AN ILLUSTRATED ACCOUNT OF

ARCHAEOLOGICAL EXCAVATIONS

CARRIED OUT AT TAXILA
UNDER THE ORDERS OF THE GOVERNMENT OF INDIA
BETWEEN THE YEARS 1913 AND 1934

IN THREE VOLUMES

BY

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VOLUME II

MINOR ANTIQUITIES

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MINOR ANTIOUITIES

Chapter 23. POTTERY

Utilitarian character of pottery

INDIAN pottery of the historic period—that is, from the sixth century B.C. onwards—is of little artistic merit. Its purpose was essentially utilitarian, and on the rare occasions when the Indian potter endeavoured to make his handiwork into a thing of beauty, the results were not of a very high order. Indeed, even when compared with the prehistoric wares of Mohenjo-daro and Harappā, which antedate it by 2,000 years and more, the historic pottery of India shows little or no aesthetic advance whether in fabric, shape or decoration. The best of the coloured designs are certainly not up to the standard of the best prehistoric ones; the shapes—apart from those inspired by Hellenistic and Parthian prototypes—show no improvement; and the finest kinds of clay are not so well levigated. To the archaeologist, therefore, the indigenous ceramic wares of Taxila are of interest mainly because of the practical uses to which they were put and the light which they throw on the everyday life of the people, or because of the chronological evidence which, in spite of their inherent conservatism, they are often able to supply.

Local and foreign wares

Fortunately, the local pottery at Taxila was constantly being supplemented and at the same time influenced by the many extraneous wares which the Greek, Maurya, Śaka and Parthian conquerors successively imported into the North-West, as well as by a few other wares from localities near or far which have not yet been identified. In the catalogue which follows, local and foreign wares are classified together under the main headings but distinguished from one another under the sub-headings. The local pottery comprises more than twenty different types or classes of vessels and other objects, besides those which were painted, moulded or stamped. Of these, Classes I–III consist of capacious store-jars, oil- and wine-jars, and small flasks; Classes IV–VII of water-pots of several shapes, large and small; Class IX of cooking pots; Class X of medium-sized jars used for various purposes; and Class XII of spouted vessels similar to the modern *kuza* and *kuzī*. In Classes XV–XVII are included bowls and saucers, pans, basins and pan-mugs; and in Classes XVIII, XX, XXI, XXIII, XXIV, XXVII and XXVIII a number of miscellaneous types, viz. perforated vessels, offerings-stands or standard censers, lamps, jugate vessels, flesh-rubbers, measures (?), lids, stoppers and vase-stands. Class XXX contains specimens of local 'red-and-black' painted ware, the technique of which is Indian, notwithstanding that some of the shapes and designs are manifestly of foreign origin. Finally, to Classes XXXV–XXXVIII are reserved local moulded and stamped wares, pottery and textile stamps, appliqué and rustic wares.

Clays used in local wares

Of the clays used in this local pottery there is little that need be said. To the naked eye they are indistinguishable from the clays used by contemporary potters

in other parts of India, nor has any material difference been discovered between the fabrics of one century and those of another, though after the advent of the Greeks there was a tendency to employ more finely levigated clays for the smaller vessels. From first to last, however, it was the general, and natural, practice at Taxila, as it was everywhere else, to adapt the quality of the clay to the size of the vessel to be fashioned, using the coarser kinds of clay mixed with shale (*makkar*), broken sherds or brick (*bajrī*) and sand for such large and thick-walled vessels as store-jars, and increasingly purer clay as the size of the vessel diminished.[1] For vessels intended to hold water or wine the clay as a rule was mixed with an unusually high percentage of sand and *bajrī* or *makkar*, which owing to evaporation helped to keep the liquid cooler. This was a practice of potters which obtained no less in the West than in the East.

Shapes of local vessels

In the shapes of the indigenous vessels there is singularly little evidence of inventiveness. Spouts and standard bases are rare and, apart from the small embryonic lugs found on cooking-pots etc., handles would probably not have been used at all but for the example set by the Greek potters. In spite, however, of the general lack of imagination and the monotonous conservatism which characterise this pottery, many of the vessels undergo developments of one kind or another in their shapes, which, though often of little significance in themselves, are yet sufficiently marked to be used as criteria of age. Thus, among the store-jars of Class I, the earlier specimens from the Bhiṛ Mound are elliptical and elongated, with the swell of the body at or below the middle; in the later specimens from Sirkap the body is definitely ovoid, with the swell above the middle. In another type (*d*) with spherical body and drooping rim, the later examples tend to become more ovoid in shape. Again, among the oil and wine flasks of Class III, the earliest type, which occurs in the Bhiṛ Mound and in the lowest (Greek) stratum of Sirkap, is a small *ghaṛā*-shaped vessel with a narrow neck. Then comes a spherical or slightly ovoid type with a flat base, and this in turn is followed, during the Śaka and Parthian periods, by taller types, some pear-shaped, others resembling Greek alabastra (from which they were doubtless copied), others with high shoulders and flat or convex bases. A later type, which is found only in the Parthian level, is bell-shaped and carinated, and a still later one, of the early medieval age, reminds

[1] A characteristic specimen of the third century B.C. from the Bhiṛ Mound gave the following analysis:

Moisture	1·02
Silica	51·90
Alumina	18·86
Ferric oxide	4·47
Ferrous oxide	0·92
Lime	16·14
Magnesia	2·57
Alkalies (by difference)	1·72
Water (combined)	2·40
Total	100·00

us, by its squatness, of a miniature Roman *obba*. Of the water-pots with rounded bottoms (Class IV) the earliest examples from the Bhiṛ Mound and from the lowest settlement on Sirkap have a pear-shaped or slightly elliptical body; the later, from the upper levels of Sirkap, have a more spherical body, sometimes furnished with a spout and frequently with a narrower mouth. The oldest cooking-pots (Class IX) from the Bhiṛ Mound are squat and elliptical, sometimes with a carinated shoulder; later specimens from Sirkap develop an everted or flat rim; while still later ones, of the Parthian period, from the same site, have a bell-shaped carinated body. We need not, however, give further examples of the changes in shape which these indigenous wares at Taxilā underwent from time to time, since the reader will find them fully described, under their appropriate headings, below. One point, though, that needs to be emphasised is that in many cases which are not now demonstrable the change of form may well have been due to foreign, and especially to Greek or Parthian, influence. Frequently the effect of this foreign influence is clear and undeniable. It is so, for instance, in the case of the two-handled amphorae of Class II, of the water-bottles of Class VIII, of the later beakers and goblets of Class XIV, and of many other shapes to be noticed later. But there are other cases in which it is impossible, with the limited data at present available, to determine whether the changes were the result of extraneous influence or of natural evolution.

Decoration of indigenous pottery

The decoration of these indigenous wares is as simple and unimaginative as their shapes. The painted designs are executed in black on a red ground. The earliest of them from the Bhiṛ Mound take the form of simple parallel bands, chequered triangles, network and vandykes; later ones from Sirkap consist of dog-tooth devices, chevrons, loops, swags, lattice triangles, quatrefoil crosses, trees and birds; and still later ones of parallel bands, loops, zigzags, wavy lines, scrolls, network and foliage. The fact that some of these motifs are foreign and that many of the vessels on which they are painted—notably the amphorae, handled jugs and flared beakers—are also foreign forms, might suggest that the art of vase-painting at Taxila was revived by the Greeks, but there can be virtually no question that the technique of this red-and-black painted pottery had been handed down in India from prehistoric times, since the same manganiferous haematite was used for the black or brown designs, and the red ground was prepared in precisely the same way as it had been prepared 2,000 years before at Mohenjo-daro and Harappā, i.e. either by mixing red ochre with the thinned-out clay of the slip or by applying the ochre alone to the surface dissolved in water or mixed with gum. On the other hand, the exclusively Hellenistic character of the earliest moulded and stamped ware found at Taxila leaves no doubt that the art of impressing designs on the wet clay with the help of moulds or stamps was introduced by the Greeks, and afterwards adapted by the local potters, who soon began substituting Indian in place of foreign designs (Class XXXV). Whether the early medieval 'appliqué ware' described in Class XXXVII and the 'rustic ware' described in Class XXXVIII had an Indian or non-Indian origin, there is not sufficient evidence to show.

Foreign wares

The foreign wares at Taxila are not numerous, but they are of great interest. Amongst the earliest are the specimens of Greek 'black ware' (Class XXXII, nos. 226–8) which were found in levels of the fourth to second century B.C.[1] and the Greek moulded or stamped wares (Class XXXV, nos. 234–40) which are of approximately the same date. The former are easily recognisable by the deep black of their surface paint and intensely lustrous varnish; the latter by the Hellenistic character of their embossed designs, the technique of which was imitated by the local potters (nos. 241–2). Of Hellenistic origin also, but of Parthian date, is a series of lion masks (nos. 252–5) used to decorate the sides of vessels, probably under the handle or spout.

Greek shapes

Among the plain undecorated wares those derived from Greek prototypes are the alabastron-shaped flasks of Class III, *d* and possibly those of Class III, *c* as well; the handled jugs of Class XIII; the beakers and bowls with deep, flared mouths of Class XIV, *b* and *c*, and Class XV, *d*; the dishes with a raised boss in the centre similar to the Greek *phiale mesomphalos*, and the frying-pans with one handle (Class XVI, *b* and *c*); the rectangular or tortoise-shaped lamps of Class XXI, *d*; the inkpots of Class XXII; and the rhytons, used as incense burners, of Class XXIV, *c*. Several of the above types of vessels do not make their appearance at Taxila until after the advent of the Parthians, who, as we have already seen, had a great partiality for anything smacking of Hellenism and were responsible for introducing into the North-West much of the Yavana culture which has usually been attributed to the Bactrian Greeks.

Probable Parthian vessels

Of other vessels which are foreign but probably to be classed as Parthian rather than Greek or Graeco-Roman, the most noteworthy are the glazed amphorae of Class II, *d*, which appear to have been manufactured in Mesopotamia, possibly at Rakka; the numerous bell-shaped and carinated vessels of medium or small capacity included under Class XI; the standard goblets with deep flared mouth, constricted neck and horizontal ribbing exemplified by no. 91 of Class XIV, *c*; and the small-handled censers of Class XX, *b*. Whether the water-condenser of Class XIX was also a Parthian invention can only be surmised.

Other extraneous wares

There remain a few other extraneous wares which are of doubtful provenance. One of these is a large water-bottle of Parthian date from Sirkap (Class XXXI, no. 225) decorated with a variety of devices in purple-brown paint on a creamy white slip. It is the only vessel of its kind found at Taxila and may have come from Western Asia. In some respects it calls to mind certain provincial Greek pottery from Sevastopol. Others are the five vessels of incised grey or red ware included in Class XXXIV, all of which appear to have been imported at Taxila, though they are not all of the same date and do not all come from the same locality.

Disposal of bulk of potsherds

I need hardly say that in the course of my prolonged excavations, particularly on the city sites of the Bhiṛ Mound and Sirkap, vast quantities of potsherds were turned up. Thousands and tens of thousands of these were washed and examined and on the notes which I made of them I have based not a few of my conclusions.

[1] No. 228 is evidently a stray from the third or second stratum.

STRATIGRAPHICAL CHART OF POTTERY

Class	Bhir Mound strata: IV Fifth to sixth century B.C.	Bhir Mound strata: III Fourth century B.C.	Bhir Mound strata: II Maurya	Bhir Mound strata: I Surface	Sirkap strata: VII ?Pre-Greek	Sirkap strata: VI–V Greek	Sirkap strata: IV Early Śaka	Sirkap strata: III–II Late Śaka-Parthian	Sirkap strata: I Surface	Other sites[1]	Class
A. Plain Ware											
I. Store-jars (nos. 1–7)	—	—	1, 2, 6	—	—	5	—	3, 4, 7	—	—	I
II. Oil and wine vessels (nos. 8–15)	10	—	8, 9, 11, 12	—	—	—	—	13–15	—	—	II
III. Narrow-necked flasks for oil, etc. (nos. 16–25)	—	—	16	—	—	17	18, 19	20–4	—	25 from Jn.	III
IV. Large water-pots with rounded bottoms (nos. 26–9)	—	—	26, 27	—	—	28	—	29	—	—	IV
V. Small pots with rounded bottoms resembling the modern *loṭā* (nos. 30–1)	—	30	31	—	—	—	—	—	—	—	V
VI. Small, pear-shaped vessels resembling the *loṭās* fixed nowadays on Persian well-wheels (nos. 32–4)	—	—	32	—	—	—	—	33	—	34 from Jl.	VI
VII. Open-mouthed pots with flat or standard bases (nos. 35–42)	—	—	35, 40	—	—	—	38	36, 37, 39, 41, 42	—	—	VII
VIII. Water-bottles for transport (nos. 43–7)	—	—	43, 46	—	—	—	—	44, 47	—	45 from Jn.	VIII
IX. Cooking-pots with round bottoms and open mouths, resembling the modern *handī* (nos. 48–51)	48	49	—	—	—	—	—	50	—	51 from Dh.	IX
X. Flat-bottomed jars of medium or small size (nos. 52–9)	54	—	52, 53, 55	—	—	—	—	59	—	57 and 58 from Dh.	X
XI. Bell-shaped and carinated vessels (nos. 60–3)	—	—	—	—	—	—	—	60, 62	—	61 from Jn. 63 from Dh.	XI
XII. Spouted pots (*kuza* and *kusi*) (nos. 64–75)	75	—	66, 70, 71	—	—	—	—	64, *a*, 72–4	—	64, *b* and 68 from Jn. 65, 67 and 69 from Dh.	XII
XIII. Handled jugs (nos. 76–83)	—	—	76, 79	—	—	83	—	77, 80–2	—	78 from Ss.	XIII
XIV. Drinking-cups, beakers and goblets (nos. 84–91)	—	84	85	—	—	—	89	86–8, 90, 91	—	—	XIV
XV. Bowls and saucers (nos. 92–107)	—	92, 96, 97	94, 103	—	—	—	95, 98, 101	93, 100, 102, 104–7	—	99 from Dh.	XV
XVI. Pans, dishes and frying-pans (nos. 108–13)	—	—	112	—	—	—	—	109	108	110 and 111 from Dh. 113 from Ml.	XVI
XVII. Basins and pan-mugs (nos. 114–19)	—	114	—	—	—	—	118, *a*	117–19	—	115 and 116 from Dh.	XVII
XVIII. Perforated vessels (nos. 120–6)	—	—	—	—	—	122	—	120, 125, 126	121	123 from Jn. 124 from Jl.	XVIII
XIX. Water-condensers (nos. 127–9)	—	—	—	—	—	—	—	127–9	—	—	XIX
XX. Censers or offerings-stands (nos. 130–4)	—	—	—	—	—	—	—	130–32, *a*, 134	—	132, *b* from Ml. 132, *c*, from Hl. 133 from Dh.	XX
XXI. Lamps (nos. 135–41)	—	—	135	—	—	—	138	136, 137, 139, 140	—	141 from Dh.	XXI
XXII. Inkpots (nos. 142–50)	—	—	—	—	—	—	142	143–5, 148, 149	146	147 from Jn. 150 from Dh.	XXII
XXIII. Double vessels (nos. 151–3)	—	—	—	151	151, *a*	—	—	152, 153	—	—	XXIII
XXIV. Miscellaneous vessels and other objects (nos. 154–74)	—	166	165, 167, 170, 174	172, 173	—	168, 171, 171, *a*	155, 164, *a*, 171, *b*	154, 156, 157, 160, 161, 163, 164, 169	—	158, 159 and 162 from Dh.	XXIV
XXV. Miniature vessels (nos. 175–83)	—	176	175, 178, 180	177, 179,	—	181, 182	—	183	—	—	XXV
XXVI. Vases in human shape (nos. 184–5)	—	184	—	—	—	—	—	185	—	—	XXVI
XXVII. Covers, lids and stoppers of vessels (nos. 186–201)	—	200, 201	186, 188, 192, 194, 198, 199	—	—	196		189, 193, 195, 197	—	187 from Dh. 190 from Jn. 191 from R.P.	XXVII
XXVIII. Ring and solid jar-stands (nos. 202–7)	—	202(?)	205	—	—	—	—	203, 204, *a*, *b*, *c*, 206, 207	—	—	XXVIII
XXIX. Drain and other pipes, gargoyles and gutters (nos. 208–15)	—	—	209, 214	—	—	—	—	210–13, 215	208	—	XXIX
B. Painted and Glazed Ware											
XXX. Local red-and-black painted ware (nos. 216–24)	217	—	216	—	—	—	217, *a*, 218, 222	219, 220, 223	—	221 from Ml. 224 from Bhallar	XXX
XXXI. Brown-and-buff painted ware (no. 225)	—	—	—	—	—	—	—	225	—	—	XXXI
XXXII. Greek black ware (nos. 226–8)	228	—	227	226	—	—	—	—	—	—	XXXII
XXXIII. Parthian glazed ware (included in Class II)	—	—	—	—	—	—	—	—	—	—	XXXIII
C. Incised, Embossed, Appliqué and Rustic Ware											
XXXIV. Incised ware (nos. 229–33)	229	—	—	—	—	—	230, 231	232, 233	—	—	XXXIV
XXXV. Embossed and stamped ware (nos. 234–55)	—	234–6	238	237	247, *a*	239–41	243, 248	246, 249	—	242, 245, 247, 250, 252, 253, and 254 from Dh. 244 from Bj. 251 and 255 from Jl.	XXXV
XXXVI. Stamps for stamping pottery, textiles, etc. (nos. 256–69)	—	—	—	259	—	—	—	256–8, 260–2, 266, 268	—	263 from Jl. 264 from Bj. 265 from R.P. 267 from Dh. 269 from Pl.	XXXVI
XXXVII. Appliqué ware (nos. 270, 271)	—	—	—	—	—	—	—	—	—	270 from Jl. 271 from Dh.	XXXVII
XXXVIII. Rustic ware (nos. 272–4)	—	—	—	—	—	—	—	272, 273	—	274 from Jl.	XXXVIII

[1] Bj. = Bajrān; Dh. = Dharmarājikā; Hl. = Hathiāl; Jl. = Jaṇḍiāl; Jn. = Jauliāñ; Ml. = Mahal; Pl. = Pippala; R.P. = Rattā Piṇḍ; Ss. = Sirsukh.

A few other specimens of these votive tanks have also been recovered from among the ruins of Sirkap, for the most part in a fragmentary state; but as they are merely duplicates of the foregoing, it would be superfluous to describe them. The questions that we must now endeavour to answer are, first, what was the significance and purpose of these interesting tanks, and secondly, how came they to be dedicated at these stūpas, whether Jaina or Buddhist? One thing, clear before all else, is that they are intimately connected with the cult of the nude goddess whose shrine and miniature idol stand, in many of the specimens, on one side of the tank. Probably this was the Great Mother-goddess whose cult was ubiquitous in ancient India and went back to immemorial times. It was this same Mother-goddess, as I have elsewhere shown,[1] whose terra-cotta images are found at Mohenjo-daro and other sites of the Chalcolithic Age, who appears figured on the thin gold plate found by the late Dr Bloch in the heart of a prehistoric funeral tumulus at Lauriyā Ararāj,[2] and who is carved in relief on the inner side of certain ringstones of Maurya date—themselves possessed of magic properties associated with fertility.[3] Then, another obvious feature of these tanks is that they are symbolical of the four elements and of all creation: of earth, air, fire and water, and of all the beings that live in them—the earth symbolised by the clay of which the tank is made, the air by the birds, the fire by the lamps, and the water by the aquatic creatures within, as well as by the water itself with which the tank was partly filled. Such symbolism calls for no recondite explanation, for there is no reason for supposing that it implies anything more than that, in the eyes of the votary, the goddess was supreme over the four elements and all created things contained in them. That, at any rate, is an adequate explanation, beyond which it is hardly necessary to go. We should not forget, however, that tanks have a certain peculiar sanctity of their own in India, partly because they are the familiar adjuncts of countless shrines and temples throughout the length and breadth of the land, partly because of the all-important part they play in the ceremonial ablutions of the worshippers. An ex-voto, therefore, consisting of a miniature shrine with a tank by its side would be a very natural and appropriate form of offering.

Connexion with cult of Mother-goddess

Symbolism of the four elements

Sanctity of tanks in India

But why—and this is the second question we have to answer—should these ritual tanks which appertained to an essentially Hindu cult, have been dedicated at Jaina or—if there is any doubt about them being Jaina—at Buddhist stūpas? The answer is to be found in the contamination which has taken place in every religion known to us, and which in the first century A.D. was affecting Jainism as much as it was affecting Buddhism. However philosophic and abstract in their essence these two religious systems may originally have been, it was inevitable that they should take much of their subsequent colour from the primitive and long-established faiths of the people, and that, as they cast their nets wider and wider among the many nations of India and its varied classes of society, they should

Fusion of older cuts with Buddhism and Jainism

[1] See *M.I.C.* vol. I, pp. 49–52.
[2] Cf. *A.S.R.* (1906–7), p. 124.
[3] See 'Stone Objects', ch. 25, nos. 129–32 *infra*.

absorb into themselves many beliefs and concrete cultural practices undreamt of by their founders. In the case of Buddhism it is well known how much current folklore went to the making of the *Jātakas*, and if we turn to the sculptures of Bharhut and Sāñchī—our surest and safest guides to the character of popular Buddhism in the first century B.C.—we find evidence on every hand of the extent to which the Śākya faith had amalgamated with the cults and superstitions of an earlier age, and become blended with them into the newer Buddhism. Thus we see in these sculptures how Lakshmī, ancient goddess of prosperity and domestic happiness, had been transformed into Māyā, the mother of the Blessed One; how the magic Tree of Life and Fortune still continued to shower its blessings on the Buddhists, as it had showered them from time immemorial on their ancestors; and how *yakshas* and *yakshīs*, *nāgas* and *nāgīs* played just as real and vital a part in the new faith as they had done in the old. It can hardly surprise us, therefore, to find these little shrines and tanks of the Mother-goddess dedicated by Jaina suppliants at the foot of their stūpas. They are only another illustration of the inevitable fusion that was taking place between the primitive cults of pre-Aryan India and a creed which was largely above the heads of the masses. The process is one which can still be seen going on in Burma, where images of the old indigenous Nats are still being set up as guardian genii round many of the Buddhist pagodas, as these small figures of the Mother-goddess were no doubt meant to protect the Taxila stūpas.

Connexion of ritual tanks with the dead

It may be, too, that this form of votive offering had some special significance in connexion with the dead; for the stūpa, be it remembered, was in origin a burial tumulus and there is no reason to suppose that its original character was ever lost sight of. I make this suggestion because small tanks of a somewhat similar kind to those we are discussing are still in use in Bengal in connexion with certain rites to Yama, the god of Death, known as *Yama-pukur-brata*. The rites are performed by unmarried girls for four consecutive years and for a full month beginning with the last day of the month Aswin and ending with the last day of Kartik: that is, from the middle of October to the middle of November. The following is the manner of the rites. A tiny tank, about a cubit square with a channel on one side, is dug in the courtyard of the house, and on the eastern side of it are placed plants of rice, banana, turmeric, *tulsī*,[1] *mān*,[2] *kalmī*,[3] and *susni*,[4] all tied together in a bundle. Then a cowry, a betel nut and a piece of turmeric are placed at each of the four corners of the tank. Next, a number of small figures are made from the excavated earth, viz. a crocodile, an eel, a tortoise, a shark, sixteen dolls representing washermen, fishermen and others, and a number of crows, cranes, kites and other birds. Of these, the crocodile, shark, eel and tortoise are placed on the edges of the tank, the two latter near the channel, the birds stuck on little sticks are planted in the middle of the tank, and of the sixteen dolls four are set on each of the banks. Thereafter, an effigy of Yama is made lying in his mother's lap, and is placed on the eastern edge beside the bundle of plants; and lastly, lamps are lit at the corners of

[1] *Ocimum sanctum.*
[2] *Alocasia Indica.*
[3] *Ipomaea aquatica.*
[4] *Marsilea quadrifolia.*

the tank. The girls then proceed to make offerings to Yama and his mother by casting flowers into the tank and pouring water therein, while they recite certain *mantras*, bowing down and praying for long life and prosperity for their families and themselves. When the *mantras* and prayers are finished, two tales are told by the girls about the powers of the *Yama-pukur-brata* and the evils that come to those who interfere with the ritual;[1] and on the last day of the ceremonies, at the end of the fourth year, the girls give food to Brāhmans, and to a cowboy they give an umbrella, a piece of cloth, a pair of shoes, a stick and ten cowry shells. Here, then, in this *Yama-pukur* of Bengal we have all the essential features of the votive tank at Taxila, viz. the square tank of water, the creatures that live in water, the birds of the air, and the lamps of fire, representing in both cases the four elements and all created things over which Yama, no less than the Great Mother-goddess, rules.

Parallels from Egypt and Lemnos

A curious analogy to these votive tanks of Taxila is also presented by a class of earthenware models found in Egyptian graves of the Middle Empire, two examples of which are illustrated in Pl. 136, *bb*, *cc*. To Egyptologists they are commonly known as 'soul-houses', and the former of the two examples illustrated (no. 136, *bb*) is doubtless a model of an Egyptian house intended for the soul of the departed.[2] The other (*cc*) is more probably in the nature of an 'offerings-dish', but, with its little lamp in one corner, it can hardly fail to remind us of the tank-shrines of Taxila, albeit the resemblance may be only a fortuitous one. A closer parallel to the latter is afforded by some votive models which were found a few years ago at Hephaestia in the Isle of Lemnos and described in the *Illustrated London News*[3] by Dr Doro Lévi. These ex-votos (Pl. 136, *aa*), which date from the sixth century B.C., consist of a miniature shrine (usually three-chambered) of terra-cotta, with a shallow tank in front, the latter being rectangular or semicircular in plan; and in the tank are various aquatic animals—eels, tortoises and the like—just as there are in the Taxila tanks. Moreover, in the case of one of the specimens illustrated the resemblance is increased by the presence of a figure seated on the edge of the tank in front of the shrine. That there is any immediate connexion between these tank-shrines from Hephaestia and those from Sirkap is, on the face of it, hardly probable, but it is by no means unlikely that both may go back to a common prototype which in the Chalcolithic Age may well have had a diffusion in the Near and Middle East as wide as the cult of the Great Mother-goddess herself.

Their character essentially Indian

However this may be, there can be virtually no question that the votive tanks at Taxila were Indian in character. It is true that they occur very rarely in the Bhiṛ Mound, and that such as have been found there are of a different type from those found in Sirkap,

[1] For the *brata* and the tales told by the girls, see the appendix to this chapter, pp. 473–5.

[2] These so-called 'soul-houses' were not known, so far as I am aware, in Roman Egypt. A large number of beautiful specimens were found by Petrie at Rifeh and are published in his *Gizah and Rifeh*. They date from the period between the VIth and XIth Dynasties. In Saïte times they are also known, but of a very rough form.

[3] *Illustrated London News* (28 Feb. 1931), pp. 328–31. Cf. *Arch. Anzeiger* (1930), p. 146; *J.H.S.* (1930), p. 245.

and it might reasonably be inferred, therefore, that the latter were a novelty introduced by the Parthians. Against this inference, however, there are two unanswerable arguments. The first is that some broken tank-shrines of the same kind were found by the writer as far east as Bhiṭā near Allahābād—in the heart of Hindustān, where the Parthians never penetrated.[1] The second is that the idols in the tank-shrines were of a type familiar in India from prehistoric times and such as were still, in the first century A.D., quite in keeping with popular ideas, but not such as foreign invaders from the West, whether Parthian, Scythian or Greek, are likely to have manufactured.

CLASS XXIV. *Buddhist terra-cotta and clay figures* (nos. 164–87)

We come now to a class of terra-cotta and clay figures which are exclusively Buddhist in character and altogether more impressive than the preceding examples. In style, they are generally similar to the Buddhist stucco sculptures described in chapter 26, but thanks to the greater plasticity of clay as compared with stucco and to the ease with which it can be handled, many of these figures show a freedom in their modelling and a sensitiveness to form which was never quite attained in stucco work. With a few rare exceptions, all these figures belong to the Indo-Afghān School of the fourth to fifth century A.D., and comprise, as we shall see, several pieces of surpassing merit. The smaller figures were usually of terra-cotta throughout, that is, of clay fired in a kiln. Of the larger figures, some were made entirely of sun-dried clay; in others, the head was of terra-cotta, the rest of sun-dried clay.

Dharmarājikā Stūpa nos. 164–72

164. Dh. '13–493; from building L. Terra-cotta head with high topknot and wreath. Height 5·62 in. That the Buddhists had already started making use of terra-cotta for their images even before Kushān times is evident from this head (Pl. 138, *a*), which comes from the Dharmarājikā Stūpa and is so strikingly similar in size and in the character of its features—notably, in its small mouth and nose and carelessly modelled eyes—to many of the stucco heads from the apsidal temple in Sirkap, that there can be no doubt about its belonging to approximately the same age (middle of first century A.D.), though the crude treatment of the wreath and topknot suggest that it may be a little later. Cf. p. 251 *supra*.

As to the other terra-cotta heads from the Dharmarājikā Stūpa, it is tempting to see in the two fine heads nos. 166 and 167, with their broad open features and western type of countenance, evidence of a stronger Hellenistic influence than is usual in the Indo-Afghān School, and, indeed, this was the view which I myself took of these two heads, when I first unearthed them at the Dharmarājikā Stūpa. But since then our knowledge of this School has vastly increased, and we can now be perfectly confident in assigning them and all the following pieces, except no. 187, to that School.

165. Terra-cotta head from chapel D5 at the Dharmarājikā. Height 5·12 in. The hair, which is parted above the forehead and tied in a topknot, is treated in unusually heavy masses,

[1] Cf. *A.S.R.* (1911–12), p. 76, nos. 47, 48, and Pl. XXV.

which might be thought to indicate an earlier date for this head, but the clear-cut, mobile lips and other features leave no doubt that it is a product of the Indo-Afghān School. Cf. p. 249 *supra*. (Pl. 138, *b*.)

166. Dh. '13–1,500; chapel G6. Bearded head of a middle-aged man, 10 in. in height, made of well-burnt terra-cotta, not of clay converted by accidental fire into terra-cotta. The hair, which is long and taken back from the forehead, is left undefined at the back of the head, evidently because the figure was in high relief and not intended to be seen behind. The brows are soft; the eyes large and wide open; the lips full; and the beard and the hair are shown in relatively fine strands, as contrasted with their more massy treatment in the stucco heads of the Parthian period from Sirkap. Cf. p. 257, no. 4 *supra*; *A.S.R.* (1912–13), p. 20 (3), and Pl. v, *d*. (Pl. 137, *b*.)

167. Dh. '13–543; chapel B12. Head of beardless youth, of well-burnt terra-cotta, 11·5 in. high. Tip of nose and left eye damaged. The hair falls forward over the forehead but is brushed back at the sides of the head; the modelling of nose, lips and cheeks is more sensitive and expressive than in the bearded head, and the eyebrows are more sharply defined. The eyes themselves, though large and open, incline slightly to the oblique, suggesting a vestige of Mongolian strain in the model. Both this and the preceding are no doubt portraits; but of the two, the beardless head is a more subtle and engaging piece of work and stamped with more character than the other. The pity is that in these, as in so many other cases, only the heads have survived. Probably it was only the heads that were made of terra-cotta, the rest being of unbaked clay, which time and weather have inevitably destroyed. Cf. *A.S.R.* (1912–13), p. 14 (4), and Pl. v, *a*. (Pl. 137, *a*.)

168. Dh. '14–585; chapel R1. Female head, with the hair taken back from the forehead and a veil falling backwards from the crown of the head. Height 7·75 in. The mouth and chin are noticeably small, the nose sharply pointed, and the eyes small and somewhat oblique, with the pupils indicated by incised lines. The ear-lobes are pierced for ear-rings. Cf. p. 254 *supra*; *A.S.R.* (1914), Pl. vii, *a*. (Pl. 138, *c*.)

169. Dh. '15–950; mon. court A; 8 ft. below surface. Bearded head of Brāhmanical ascetic, with strongly pronounced features. Height 7 in. The hair is taken back in coarse strands from the forehead and coiled on the crown of the head. The eyes appear to have been inserted in separate pieces in their sockets. The modelling of the features, though rough, is full of vigour and there is a freedom about it which argues no little ability on the part of the artist. It should be noted that the clay of this head is badly burnt, but the burning does not appear to have been accidental. Cf. p. 278 *supra*; *A.S.R.* (1915), Pl. iii, *b*. (Pl. 138, *d*.)

170. Dh. '12–1,916; chapel L. Male head, with hair taken back from forehead and remains of bow on top of head. Height 5 in. Deep-set eyes with prominent eyeballs and heavy eyelids; rather high cheek-bones, full fleshy lips, and prolonged ear-lobes. To what class of figure this head belonged, is uncertain. It seems safe, however, to say that it was not a personal portrait. At first sight the full fleshy features call to mind the stucco head, no. 78, which also comes from the Dharmarājikā Stūpa, but that head is a portrait head and decidedly superior in style and execution to this one. (Pl. 138, *e*.)

171. Dh. '13–1,452; B16; 6 ft. below surface. Male head with moustache, wearing elaborate Indian turban and heavy ear ornaments. Height 4·5 in. Somewhat similar heads of stucco are to be found among the sculptures at Jauliāñ and Mohṛā Morādu. Cf. p. 249 *supra*; *A.S.R.* (1912), Pl. vi, *a*. (Pl. 138, *f*.)

172. Dh. '15–1,195; mon. court A; 8 ft. below surface. Head of Bodhisattva (?) with hair falling from *ushṇīsha* over forehead and ending in plaited fringe, most of which is missing. Height 6·25 in. Above the fringe is a fillet tied in a bow. From the back of the *ushṇīsha* a veil falls down the back. The eyes are large and staring; the nose and lips more than usually prominent. Cf. p. 278 *supra*; *A.S.R.* (1915), Pl. iii, *e*. (Pl. 138, *g*.)

Kālawān (nos. 173–8)

When describing the stucco figures from Kālawān (p. 332[1]), I draw attention to an unusual facial type found almost exclusively on that site, with rather short nose, full cheeks and chin and pronouncedly curved lips. The stucco heads in question are not of especially high-class style, but their character is so distinctive, that they can be picked out at a glance from among the countless other specimens at Taxila. The same observation applies to most of the terra-cotta and clay heads from the Kālawān monasteries, only that in their case the style and workmanship is of a very much higher order, putting them, along with the stucco reliefs of Mohṛā Morādu, among the finest products of the Indo-Afghān School.

173. Kn. '32–45; B20; 2 ft. 9 in. below surface. Terra-cotta head of Buddha. Height 18·1 in. *Ushṇīsha*, forehead and left ear damaged. This is the largest head of Buddha in terra-cotta found at Taxila, and a fine example of the conventional type, distinguished by great dignity and reserve. The clay has been intentionally, not accidentally, fired. The body was no doubt of clay. The Buddha image to which this fine head belonged was the centre figure of a group comprising nos. 174–6 as well as several other figures now reduced to fragments. For detailed description, see pp. 337–40 *supra*. (Pl. 137, *d*.)

174. Kn. '32–46; from same spot as no. 173. Terra-cotta head of Bodhisattva. Height 14 in. A superb example of the modeller's art. Wears moustache, ear-rings, elaborate head-dress with the hair drawn back over ears. The head-dress, which is unique of its kind, is composed of a crescent-shaped crown in front, with a turret-like erection behind. The decoration of the crown is in imitation of encrusted jewels, with a foliate rim above and beaded border below. The side pieces are plain. The ear-ring (there is one only, on the left side) is of a very elaborate and unusual form, the cluster of drops being turned upwards instead of downwards. The clay seems to have been intentionally, not accidentally, burnt. See no. 173. (Pl. 137, *c* and frontispiece to this volume.)

175. Kn. '32–43; from same spot as no. 173. Clay head of *deva*, with long hair waved back from the forehead. Height 8·5 in. *Ushṇīsha* and ears missing. The clay has been fired by accident in the conflagration of the monastery. See no. 173. (Pl. 137, *e*.)

176. Kn. '32–42; from same spot as no. 173. Clay head of monk, with shaven crown. Height 6·4 in. Right ear missing. Traces of lime-wash. Clay only half burnt, in accidental fire. See no. 173. (Pl. 137, *f*.)

177. Kn. '32–200; cell F12; floor-level. Portrait head in unbaked clay of a lay figure with hair falling over forehead. Height 7·9 in. The right side of the head is damaged. Probably a portrait of the donor of the group with his wife (no. 178), as in the Jauliāñ group no. 181. The modelling has been done with an unusually free touch. Cf. p. 335 *supra*. (Pl. 137, *h*.)

178. Kn. '32–183; cell F12; east side; floor-level. Portrait head of a female figure of burnt clay, with long wavy hair parted down the centre and taken back over the ears. Height 4·75 in. Crescent tiara on crown. Traces of lime-wash. In all probability a portrait of the wife of the donor, no. 177. (Pl. 137, *i*.)

Mohṛā Morādu (nos. 179–80)

179. Another image of the Buddha in the strictly conventional style comes from Mohṛā Morādu. It is an exceptionally fine piece of modelling and has the advantage of being unusually well preserved:

Mm. '15–21; monastery. Image of the Buddha, seated cross-legged in the *dhyāna-mudrā*, with *saṅghāṭī* covering both shoulders. Height 20 in. The hair is taken back in waves over the *ushṇīsha*. On the forehead, between the brows, the small *ūrṇā* is shown in relief. Though formalised, the features are a shade less lifeless than is usual, and the drapery more naturalistic. On these grounds the image might be taken to be earlier than the generality of sculptures at

[1] Cf. also ch. 26, pp. 530–1.

Moḥṛā Morādu, but there is no doubt that it is a work of the Indo-Afghān School and that its merits are due to the more than ordinary ability of its author. The image is made of buff-red clay, well baked as to the head, but indifferently in the body. It originally occupied the small niche in front of cell 21 in the monastery courtyard. Cf. p. 361 *supra*; *A.S.R.* (1915), Pl. XXIV, *e* and p. 30. (Pl. 138, *j*.)

Among other terra-cotta heads of the Buddha from Moḥṛā Morādu it may be noted that one (Mm. '15–152) is made of a half-inch thickness of terra-cotta on a core of coarse earth, and that the whole was finished with a thin clay wash covered with gold-leaf, some of which still adheres to it in patches. There was no lime-slip beneath the gold. In another head (Mm. '15–149), which is completely in the round, each ringlet of hair was made and fixed separately. The only other head from this site that deserves mention, is the following:

180. Mm. '15–218; cell 6; 6 ft. below surface. Terra-cotta head of a *deva*, height 4·5 in., with long wavy hair and dreamy half-closed eyes, as in the *deva* of the terra-cotta group at Jauliāñ, no. 181, and of the stucco group at Moḥṛā Morādu, no. 30. As in those cases, the figure was at the top of a group and intended to be looking down from above, with the head inclined forward and seen three-quarter face only. This explains why the top of this head is flattened at the point where it rested against the soffit of the niche. The surface of the terra-cotta is covered with a white lime slip. Cf. p. 361 *supra*. (Pl. 138, *k*.)

Jauliāñ (nos. 181–6)

181. Jn. '27–F583. How the various figures described above—Buddhas, Bodhisattvas, lay-worshippers, monks and *devas*—were grouped together on the walls of the stūpas or monasteries we have already seen well exemplified in the stucco reliefs at both Moḥṛā Morādu and Jauliāñ, but a still more instructive example is provided by a remarkable group at Jauliāñ, which was executed in clay and by a lucky chance converted into terra-cotta by a fire which burnt down the monastery. This group occupied a large shallow niche (5 ft. 6 in. × 4 ft. 10·5 in.) in front of cell 29, protected from the weather by the broad veranda which ran round the four sides of the court. In the centre stands the Buddha, now headless, evidently in the *abhaya* attitude. To his right is a male figure of medium size wearing a tunic which reaches to his knees, trousers with buttons for lacing, a clasped and jewelled belt and a pointed cap. Between this figure and the Buddha is a small female figure, clad in a long dress and ample shawl; and, to the Buddha's left, a monk wearing a *saṅghāṭī*, with his right shoulder bare. Above, to the right and left of the Buddha's head and shoulders, are two *devas*, standing on lotuses and looking down towards the Buddha. On the side walls of the niche were two large standing Bodhisattvas, but little of them, unfortunately, has survived. Of the figures on the back wall of the niche, the monk on the Buddha's left is probably the abbot of the monastery, while the man wearing the conical cap and tunic is no doubt the donor of the group, and the little woman beside him, his wife. The dress and distinctive bearded face of the donor mark him clearly as a foreigner (*mleccha*) from the Persian side. Particularly noteworthy are his cap, laced-up trousers (or possibly leggings over the trousers) and the clasped belt which holds in his tunic round the hips. The last-mentioned was probably of gold or silver, either embossed or encrusted with gems. In true oriental fashion, the donor's wife is represented as little more than half his size. Her dress, too, is of interest. It consists apparently of a long tunic like the Greek *chitōn*, with a shawl (Indian *sārī*; Greek *himation*) draped loosely over the left arm and shoulder and round the legs in front, leaving the tunic visible over the upper part of the body. Her ornaments consist of two bangles on each wrist, an armlet on the right arm, a heavy necklace, and a lighter girdle (*mekhalā*) round her hips. Her cap appears to be provided with the characteristic Persian cheek-pieces or band which passes beneath the chin, and to be secured with cross straps fastened with a medallion in front and tied at the back of the neck. The dress worn by the celestial *deva* to the proper right of the Buddha is much the same as that worn by the woman below, except that the under-tunic is so disposed as to leave the right shoulder bare and that the *deva's* long wavy curls are unconfined by a cap. A feature of this *deva* that merits

particular notice is the dreamy expression of the eyes, the lids of which are half-closed, as they almost invariably are in conventional images of the Buddha. The expression is one that from time immemorial had been associated with *yoga*, and from the *yogī* type had been transferred to that of the Buddha. Later on, in the early medieval period, it evidently came to be regarded as a characteristic trait of the celestial *devas* who offered their worship and tribute to the Buddha. Compare, for example, the *devas* in the Mohṛā Morādu stucco relief no. 30, and the terra-cotta head from the same site no. 180. Cf. p. 381 *supra*; *Jauliāñ Mem.* Pl. XVII, *a*, *b*. (Pls. 138, *o*; 139.)

182. Jn. '28–F582. A youth carrying a basket of fruit and flowers, from wall group in chapel E1. Height 24·5 in. He wears trousers and a tunic which reaches to the knees and is fastened on the left shoulder with buttons and loop knot. He may be a servant of the donor, or possibly the donor himself, offering the fruit and flowers to the Buddha, whose image, on the right of the youth, has disappeared. Observe the long ear-lobes pierced for ear-rings, which were once no doubt inserted. The figure is of clay which has been accidentally burnt, on the surface only, to terra-cotta. Cf. pp. 377–8 *supra* and *Jauliāñ Mem.* Pl. XII, *b*. Among the sculptures from Haḍḍa now in the Musée Guimet in Paris is a somewhat similar figure (no. 17241) holding a dish or basket of what appear to be lotus buds, but the material in that case is stucco not terra-cotta. (Pl. 138, *p*.)

183. Jn. '16–197, *a*; south-west corner of mon. court. Mask of clay, probably from a figure of Vajrapāṇi, wearing drooping moustaches, whiskers and beard. Height 4·87 in. The features are strongly marked and the modelling exceptionally firm and clean, showing a fine appreciation of form and line. The clay has been accidentally burnt—on the surface only—to terra-cotta. Cf. *Jauliāñ Mem.* Pl. XXV, *e* and p. 51, no. 4 and p. 385 *supra*. (Pl. 138, *l*.)

184. Jn. '16–F28; mon. court. Terra-cotta head of child with lips parted in smile, hair falling over forehead, finely curved brows and chubby cheeks, the whole having a remarkably modern look. Height 4·5 in. Covering the surface is a slip and lime-wash. Nose damaged. Cf. *Jauliāñ Mem.* Pl. XXV, *d* and p. 51, no. 6. With this and the following number may be compared a small stucco head of an 'amorino' from Haḍḍa, now in the Musée Guimet (no. 17257), though it has not quite such a laughing expression. Cf. p. 385 *supra*. (Pl. 138, *m*.)

185. Jn. '16–197, *b*; south-west corner of quadrangle. Terra-cotta head of child, slightly smiling. Height 5·5 in. Three tufts of hair, one on forehead and two over ears; head-dress of plaited ribbons, with bow on top. Socket-hole in neck for attachment—probably to a body of clay. Traces of gilt. For the three-tufts of hair, cf. 'Stucco Sculptures', ch. 26, no. 85 = Pl. 160, *h*, and the centre amorino in the Gandhāra sculpture no. 73, Pl. 216. Cf. *Jauliāñ Mem.* Pl. XXV, *f* and p. 51, no. 5; and p. 385 *supra*. (Pl. 138, *n*.)

186. Jn. '16–F29. Front of chapel 8. Bunch of pipal leaves belonging to the canopy over a Buddha. 7·75 in. across. Octagonal socket-hole underneath, for support. Of slightly burnt clay. For chapel 8 and its clay figures, see chapter 20, pp. 381–2.

Jaṇḍiāl 187. Jl. '12–242; mound C; 3 ft. below surface. Head and bust of buff terra-cotta. Height 5·25 in. Over the hair is a bandeau with high brim attached, having the appearance of a modern hat. Rosette in front, and two more rosettes below ears, which may be ear-pendants. Scarf over left shoulder. Right shoulder missing; mouth and cheeks damaged. Traces of black paint on hair.

It should be noted that this remarkable piece is a bust only, not part of a full-length figure. Its date is uncertain, as its form and style are unlike those of any other sculptures at Taxila. It is probably not earlier, however, than the fourth to fifth century A.D. Cf. p. 224 *supra*. (Pl. 137, *g*.)

Appendix

THE *YAMA-PUKUR-BRATA*

Maidens dear, sit on the *ghāt* and with flowers in hand utter this *mantra*:

'Worshipped be the plants of paddy, *mān*, banana, *kachu*,[1] *tulsī* and turmeric.'

Throw the flowers into the tank and repeat the process thrice. Then take the flowers again and say:

'*Susni* and *kalmī* wave and gleam, and the prince kills the birds. Let the birds die and the marshes dry up. The golden casket with the silver-pin—it hurts my hand to open it. Let my parents be blessed with wealth untold. May Lakshmī and Nārāyan grant the boon that our home be prosperous with wealth and children.'

Throw the flowers into the tank, and repeat the process thrice. Now say:

'Let the mother of the fat Yama, King Yama himself, the washerman and the washerwoman, the fisherman and the fisherwoman, the lamp of ghee, the shark and crocodile, the kite and the king-fisher, the crow and the heron, the eel and the tortoise, all be my witnesses: that I am performing the rite of *Yama-pukur*.'

Thereafter take a pot of water and say the following, while you pour water into the tank:

'Whose pot is this? It is my parents'.'
'Whose pot is this? It is my father-in-law's and mother-in-law's.'
'Whose pot is this? It is my neighbours'.'
'Whose pot is this? It is mine and my husband's.'
'What is this tank? The lucky maid has worshipped this tank and let me empty this pot of water into it.'

Now pour all the water into the tank and then bow down uttering the following *mantra*:

'The sun-god sinks softly into the lap of his mother, and Brahmā has floated away, and my deity is deep in meditation seated in the tank of Yama. Oh! mother of Yama, my prayer unto you is that your dread child may not be hostile to my parents, brothers and sisters. Oh Yama, Lord of virtue, I beg this boon: that I may be freed from your persecutions.'

Then, following this, two tales are told; and this is the first tale:

'There lived a merchant with his mother, and the mother married her son to a girl who performed the rite of *Yama-pukur*. With her arrival the merchant began to grow great in men and money. The merchant grew greater; thorns were set before the doors of death; no man died before his time; the merchant's house was full. But in an evil moment the merchant's mother came to know that her daughter-in-law performed an occult rite in secret; and the reason of the secrecy was that none else knew the rite. Howbeit the mother, perceiving it, thought that her daughter-in-law was performing some witchcraft to injure her son. "Out", cried the old woman, "thou child of occult knowledge! What dost thou do? What foolhardiness is this? Wilt thou devour me or my son? Day after day thou gettest up in the morning, and diggest a hole in the courtyard, and mutterest the incantations. I do not understand thy ways." With this the old woman rushed at her angrily, scattered everything with her feet, filled up the tank, and destroyed the good girl's rite.

[1] *Colocasia antiquorum*.

'Thus, every time the merchant's wife made arrangements for the worship of Yama, the mother set herself to spoil it. So the rites could not be observed any more. Then came nemesis, and the merchant found that death had begun to play among his men and cattle. "Why these evil signs?" wondered the merchant. Then one day the merchant's mother died, and the son performed her obsequies with much pomp and splendour. But whatever the son might do, his mother found no place of rest in any of the higher or lower regions, and she roamed through the three worlds with unquenchable thirst, finding no water anywhere. For she had spoiled the rite of *Yama-pukur*, and how could she find water to drink?

'At last one day, when it was not yet dawn, the merchant's mother sent her son this dream: "My son, I have spoilt the *Yama-pukur-brata*; so do I find neither water nor rest. Have it performed by your wife, else all you have done for the welfare of my soul will be of no avail."

'On seeing this dream the merchant started up and asked his wife: "Wife, is this true?" "Alas, yes", said she, "Whensoever I made arrangements, my mother-in-law came always and spoilt them. I know not what evil has happened or through what fault; but I shall try again; and do thou get ready the crows and the kites and Yama's mother of gold."

'That was the last day of Aswin, the day of worshipping Yama in a tank. So the merchant got up with all speed, brought craftsmen and artisans, and made everything ready. Thereupon his wife performed the rite; from a pot in her hand she poured water into the tank, and the tank overflowed, and the merchant's mother drank her fill and went appeased to heaven.'

What comes from the observance of this rite?

Not a straw in the family of the performer of this rite is touched by the god of death. Her father-in-law and her mother-in-law have their thirst quenched in heaven.

And the second tale is as follows:

'On the last day of Aswin sundry people were performing the rite of *Yama-pukur*. Uddhab's mother was living on the outskirts of the village "Kripni" with her son and her daughter-in-law. One day the old woman told her daughter-in-law to fetch from a neighbour's house an earthen pot for boiling rice. And the daughter-in-law found people observing the rite of *Yama-pukur*. She learnt that it was by virtue of *Yama-pukur* that a father-in-law and mother-in-law had their thirst allayed after death, and made their way to heaven. So she performed the rite there and returned home. "Why this delay?" inquired the old lady. "The housewives have given me the pot after boiling their rice", answered she. The mother-in-law said: "This pot I shall return myself after boiling my rice." When she went to the neighbour's house, she found them observing *Yama-pukur*, and was told not only of the merits accruing from the rite but also of the fact that her daughter-in-law had herself come and performed it there. "Perdition!" cried she. "All that the wretch cares about is consuming and wasting the substance of Uddhab."

'The daughter-in-law going at dusk to set a lamp before the sacred tank found that there was no tank. She wept and sighed; the people said: "Tears are of no avail. Inform your brother and perform the *brata* next year in his house." The year went round, and at the advent of Kartik people were observing the *brata*. The mother-in-law said: "Daughter, go and pick up some leaves of bamboo", and going out she dug a tank, worshipped it with flowers and water, and returned home telling the shepherd boy that she would give him cloth, shoes and an umbrella, when the rite should be finished. "Why this delay?" demanded the mother-in-law. The daughter-in-law replied that she had to sweep and gather the bamboo-leaves. Then went the mother-in-law to pick up the bamboo-leaves, and she fell into the tank and splashed hurriedly out of it. "Cursed wretch, thine only care is to consume and waste the substance of Uddhab. Oh, the idea of digging a tank in this place!" The daughter-in-law went out, lamp in hand, in the evening, but found that the tank had disappeared. She wept, and they said: "Tears are fruitless, send a message to your brother, and do the *brata* next year in his house."

'Aswin passed; Kartik came round again; and once more the people were worshipping the

tank. "Go now", said the mother-in-law, "and serve dinner to my son." But the wife dug a tank in the kitchen and worshipped it with flowers and with water; and, this done, she came back. The day following the mother-in-law said once more: "Daughter, wash yourself clean and serve dinner to my son", and the girl went out to wash. And the mother-in-law put oil into her ear, washed herself with the water of a spoiled earthen jar and went to serve dinner to her son. She slipped unawares into the hole and shrieked out: "Curse on thee! thou art only for eating the substance of Uddhab! The idea of digging a tank here!"

'Next year what could the daughter-in-law do but tell her brother? The brother took her to his house and she began her rite there. The consummation of the *brata* was a great success and Brāhmans from all parts were invited and sumptuously fed.

'Now Uddhab's mother was nearing her end. "Bring my daughter-in-law", said she to her son. The daughter-in-law came, and with her came three Brāhmans. Poorly did Uddhab's mother serve the three Brāhmans, but they went away highly gratified with the hospitable and devoted service of the daughter-in-law.

'The mother died, but her soul remained in torture. Then Uddhab asked the learned Brāhmans how he could liberate his mother's soul. They said: "Your mother has thrice destroyed your wife's *brata*. If your wife constructs a bathing-*ghāt* in your mother's name, then only can your mother's soul be free." The wife at first refused but at last complying, she constructed four *ghāts* to the gods, one in the name of her parents, another in that of her father-in-law and mother-in-law, the third in the name of her chosen deity, and the fourth in her own name.

'The four *ghāts* were constructed and Uddhab's mother went to heaven.'

The *Yama-pukur-brata* is done. Now the dolls, flowers and other things are to be thrown into the water. The tank is to be filled up, but the bundle of rice and other plants must remain as they are.

Chapter 25. STONE OBJECTS

Character of objects described

OF THE many objects of stone recovered from the ruins of Taxila the most interesting are the sculptures described in chapter 36, which served chiefly for the adornment of Buddhist buildings. But besides these there is a large collection of utensils and other articles of daily use, which come mainly from the Bhiṛ Mound and Sirkap, and appertain to the period from about 300 B.C. to A.D. 100. These articles comprise pivot-stones, querns and mullers, pestles and mortars, grinding-mills, household vessels of various kinds, lamps, toilet-trays and vases, burnishers, touchstones, palettes, spindle-whorls, potters' *konoras* and *thatwās*, amulets and sacred ring-stones, moulds, stones for incrustation and inlay work, and a few miscellaneous pieces such as knife-handles and dies. In addition to these, there are a number of finger-rings, seals, gems and the like, made from precious or semi-precious stones, which the reader will find described in chapters 30, 31 and 34.

Local varieties of stone

As explained in a previous chapter, there are only two varieties of stone found in natural formation at Taxila itself, namely, the hard almost flint-like limestone of which the foothills round about are mainly composed, and the very coarse and soft lime *kankar* or *kañjūr*, as it is commonly called, which is abundant on every side in the alluvium of the plain. Although these stones were used freely as building materials, neither of them lent itself to the manufacture of small articles—the *kankar*, because it was altogether too soft and coarse; the limestone, because it could not be worked so well, and was not so attractive to look at, as other varieties of hard stone of which many, in the form of pebbles, are washed down in the torrent beds from the far-off Murree and Kashmīr hills. We shall find, therefore, that, while *kankar* was never used at all for small objects, limestone was only used very rarely for such simple little things as weights, mullers and moulds. There is only one example of it having been turned on the lathe, namely, the unguent bottle from Jaṇḍiāl, no. 59, *a*.

Other varieties and their provenance

Apart from this local limestone, the hard stones used in the manufacture of many of the small articles enumerated above were: blue serpentine,[1] *sang-i-abri* or *abri*, basalt, quartzite, hornblende, hornblende-gneiss, gneiss, granite, pyroxene, diorite, epidiorite, epidote-quartz, dolerite, black basanite, black and white syenite, Lydian or touchstone and chert; to which must be added also the semi-precious stones used for personal and other small ornaments including beads, viz. crystal, agate, *porcelain-agate*, chalcedony, carnelian, red and green jasper, agate-jasper, jade, jadeite, jade-nephrite, turquoise, lapis-lazuli, amethyst, garnet and beryl. Of these, chert is found commonly in Sind and Balūchistān as well as in many other

[1] Among the many beads found at Taxila one is of red and six of blue serpentine. Cf. Beck, *op. cit.* Pls. I, 25 and X, 26, 27.

areas, and during the Chalcolithic Age was used freely for knives, scrapers, weights and polishers. *Abri*, which is a lower cretaceous shell limestone of a variegated chocolate and yellow colour, is abundant in the Hazāra and Attock districts, and in Mughal times was destined to become a favourite stone for the inlay-work on buildings and pavements. At Taxila it was used for bowls, cups or dishes, but is found only in the Bhiṛ Mound settlement up to about 200 B.C. Many of the other hard stones, such as basalt, quartzite, hornblende, hornblende-gneiss, gneiss, granite, dolerite and basanite, were obtainable in the form of pebbles from the beds of the neighbouring Tamrā nālā or Haro river, where the writer has himself picked up specimens of most of them, as well as of sandstone, marble and jasper. A few of those found in these torrent-beds to-day may, no doubt, have found their way there from the ancient settlements now crumbled to ruin on their banks, to which they were perhaps brought from afar in days gone by, but most of them have certainly been washed down from the distant highlands on the east.

Other stones such as blue serpentine, green diorite and black Lydian, of which there are only one or two specimens at Taxila, may have come from remote localities which it is now hardly possible to identify.

Semi-precious stones

Of the semi-precious stones, rock-crystal, agate and chalcedony are found in so many localities in India that it is impossible to say whence the lapidaries of Taxila obtained their supply. Rock crystal, which is a form of silica or quartz, occurs in Kashmīr and in the red marls of Mari in the Miānwāli district of the Panjāb, but some of the best crystal nowadays comes from Tankāra in the Kathiāwār peninsula or from the bed of the Godāvarī in Madras. It is also found at Aurangpur, near Delhi, Sāmbhalpur, Morvī, and other places. The finest agates (and some of the agates from Taxila are unusually fine), together with the closely allied chalcedony, come from the Ahmadābād and Kaira districts of Bombay, from Kathiāwār and from the Rājpipla State, where agate-jasper is also found in company with them. Other sources of agate-jasper are the beds of the Kistna, Godāvarī and Bhīmā rivers, but the Taxila stones are more likely to have come from the Rājpipla hills. Good agates are also obtained from north of the Pangong Lake in the Rudok district of Kashmīr, from the Rājmahal hills and from the beds of the Narbadā and Godāvarī rivers. The main centre at which agates, chalcedony and carnelians are now cut and polished is Cambay, but the industry exists also at Jabalpur and other places within reach of the amygdaloidal Dekhan trap. In the first century A.D., when the *Periplus of the Erythræan Sea* was written, the principal market for the export of these stones to the Western world was at Barygaza, the modern Broach, whither some were brought from Ujjayinī (Ujjain), others no doubt from the Kathiāwār peninsula or from the Rājpipla State; and it seems highly probable that many stones from these sources found their way up the Indus to Taxila. Small vessels made of agate were in vogue there, particularly during the Parthian domination, and it is noteworthy that Pliny attributes vessels of this class, for which large prices were paid at Rome, to Parthia and Carmania, the fact being that at the time when Pliny wrote the trade was still mainly in the hands of the Parthians, who had

command both of the sea-route via the Persian Gulf and Charax Spasini (Mohammerah) and of the land-route via Taxila, the Kābul valley and Herāt. At a later date, when the discovery by Hippalus of the monsoon trade-winds had opened up the Red Sea route to Roman commerce, these objects no longer had to pass through Parthian hands.[1]

Pebbles of jasper of various colours—red, green and yellow—are common in the river-beds of Rājputāna, Central India and the Central Provinces, particularly those which drain the Satpūra Range, as well as in the Sōn valley. Jade, comprising both jadeite and the nephrite variety, comes from the well-known mines in the Karakash valley of Eastern Turkestān;[2] nephrite jade is also found in Rewah State in Central India, and jadeite in the Tunga valley of the Pāmīrs and the Myitkyinā district of Northern Burma. The few specimens unearthed at Taxila are more likely to have come from Eastern Turkestān, the Pāmīrs or Rewah State than from so far afield as Upper Burma.

Of lapis-lazuli, the chief source has long been the Kokcha valley of Badakshān in Northern Afghānistān, but this stone is said vaguely to occur also in 'Tartary', Tibet and China. Turquoise was imported from Persia, where it is still quarried near Nīshāpur in the Khorāsān Province near Kermān, and Kārik, and near Māshīz.[3] Amethysts are found in the Santāl Parganas of Bihar and Orissa and at several spots in the Bashahr State on the Upper Sutlej; they occur also occasionally in the Dekhan trap. But the finest specimens come from the gem-gravels of Ceylon. Garnets are found in mica schists at various places in Rajputāna, notably at Rājmahal in Jaipur State, Sarwār in Kishengarh, Ajmer and Bhilwāra; they are also found in the Darjeeling district, Sikkim, Hyderābād State and at numerous localities in the Madras Presidency. Beryl and aquamarine, which occur commonly in the granite pegmatites of India, are nowadays obtained at Pādiyur in the Coimbatore district and at Vaniyambadi in the Salem district of the Madras Presidency, at Punnata in the Mysore, and in the Toda hills of the Jaipur State in Rajputāna. They are also known to occur in the Nellore district of Madras and in the Hazāribāgh district of Bengal.

elain- The stone to which I have given the name of porcelain-agate, because of its remarkable resemblance to porcelain, is new to geology. It is found at Taxila only in the form of round flat disks, evidently used for some kind of inlay-work during the Maurya period. The disks vary from 2–3 in. in diameter, and 0·1 to 0·2 in. in thickness. The stone, which is banded, appears on one side like an opaline chalcedony, on the other, which is brilliantly polished, as an opaque glass-like porcelain. When first examined by experts of the Indian Geological Department, the material was taken to be an artificial porcelain, but further research has left no doubt that it is a natural stone produced, possibly in a volcanic region, by the long-continued heating of ordinary quartz. The specific gravity and chemical analysis of this stone, as well as the results of its microscopic examination, are discussed below (pp. 505–6).

[1] See Schoff, *Periplus of the Erythraean Sea*, pp. 193–4. [2] Cf. *M.I.C.* pp. 541, 685.

[3] *M.I.C.* p. 678. Turquoise is also said to occur in Turkestān and in the Kojent and Kārātvube mountains.

Uses to which hard and soft stones were put

The semi-precious stones enumerated above were used only for small articles of a more or less ornamental character, and the commoner varieties of hard stones, such as gneiss, hornblende, granite, *sang-i-abri*, etc., for those articles of daily use —celts, pivot-stones, querns, mullers, etc.—which were subject to excessive wear and tear. On the other hand, household vessels which had to be turned on a lathe, lamps, ladles, toilet-trays, caskets, palettes and objects generally which were not exposed to rough usage, as well as sculptures in relief and in the round, were naturally cut from the softer varieties of stone.

This general observation, however, is subject to certain qualifications. In the prehistoric age, it had been customary to make certain vessels, particularly shallow dishes, bowls and saucers, of gneiss, hornblende, granite and other refractory stones, the stone being first chipped and then ground away with the help of a specially shaped stone-borer aided with sand as a fricative. One of these borers, dating from Chalcolithic times, was found at Mohenjo-darō, and is described in my *Mohenjo-daro and the Indus Civilisation*, vol. II, p. 459. The same practice seems to have been continued at Taxila into historic times, but the lathe also came early into use, and there are some fine specimens of Maurya vessels made of these hard stones, which have been turned on the lathe instead of being ground out with the borer. By the beginning of the Christian era, however, such vessels were almost invariably made of one or other of the soft schist stones, or of steatite or alabaster.

Another exception to the general rule stated above is provided by some of the querns and mullers. In the Chalcolithic Age saddle-querns had invariably been made of hard stone—generally basalt or gneiss, and the saddle-quern and its muller, like the mortar and pestle, continued to be made of some similar hard stone like quartzite, hornblende or *abri*; but when the stool-quern came into fashion, in the Maurya period, both it and the muller used with it were made of sandstone. This may have been because it had been found by experience that sandstone was peculiarly suited to the grinding of grains and spices, and because it lent itself more readily to the ornamental carving which is found on many of these stool-querns. The first part of this observation applies also to the circular grindstones (Class V, *a*) which were first introduced at Taxila during the first century of the Christian era, and for which sandstone is still usually preferred. On the other hand, the crushing mills of Class V, *b*, which had to be specially strong and durable, were invariably made of hard quartzite.

Varieties of sandstone used in Bhiṛ Mound settlements

The sandstone used for these objects in the Bhiṛ Mound settlements, i.e. up to the beginning of the second century B.C., is of four kinds: (1) the grey Tarakī or Kambiāl sandstone, which is found in plenty some 14 or 15 miles south-east of Taxila, and which was used for the pillars and pilasters of the Jaṇḍiāl temple.[1] (2) A spotted red and white sandstone which comes from Mathurā near Agra. (3) A buff-coloured, fine-grained hard sandstone, usually with small black spots, from Chunar near Benares. (4) A greyish quartz sandstone of very hard texture, the provenance of which has not yet been ascertained. The second of these is well

[1] A strong axis of this rock runs along the Chirpar hills.

known, not only from the many statues or reliefs of the early Mathurā School which are carved from it, but also from innumerable monuments of Moslem times which were built of it at Agra, Delhi and Mathurā. The third variety is also well known from the historic pillars of this stone which were set up by the Emperor Aśoka in the third century B.C. That this particular sandstone should be found in the form of mullers at so remote a spot as Taxila is at first sight surprising, since it could hardly have been brought such a distance for the sole purpose of making utensils which could have been equally well made of Tarakī sandstone or of one of the harder local stones. The explanation appears to be that Aśoka had set up one or more of his famous pillars, and possibly some other monuments as well, at Taxila; that these monuments had been thrown down and broken after the eclipse of the Maurya power; and that the mullers were made out of some of the fragments, just as a piece of one of these selfsame pillars was used last century for a road-roller and a piece of another for a sugar-cane press! However this may be, these mullers of Chunar stone are found only in the later deposits of the Maurya period in the Bhiṛ Mound, not in Sirkap or on any of the later sites. On the other hand, the Tarakī, Mathurā, and quartzite sandstone all occur on the Sirkap site, in strata of the first century A.D., and besides them there occurs also on that site a variety of deeply coloured red and purple sandstone belonging to the Murree group, which is found in large deposits round about Sang-jani, some 10 miles south-east of Taxila.

Other soft stones used in Bhiṛ Mound settlements

The other soft stones found on the Bhiṛ Mound are steatite, alabaster and slate. All three of these have a wide distribution in India and are easily obtainable at Taxila—slate especially so, since it is found in large quantities in the Hazāra district within a few miles of the city, and, as we have already seen, it was freely used for the construction of drains and bathroom floors, while alabaster is equally prolific in the gypsum deposits at the foot of the Salt Range in the Panjāb. Thanks to their fine texture, both slate and alabaster could be carved with the minutest figures in relief, and we find both of them employed for the exquisitely carved ring-stones of Maurya date described below (nos. 129–31). Slate, too, was employed for small jewellery and inlay moulds, since, apart from its fine texture, it was, unlike alabaster, capable of resisting considerable heat. Alabaster and steatite, on the other hand, were occasionally used during the Maurya period for small household vessels. That stone was not more freely employed during that period for household vessels and utensils was in all probability due to the religious conservatism of the people, who then as now were afraid of contaminating their food or drink if they took them from any vessels other than the orthodox ones made either of earthenware or of copper or brass. It was certainly not due to any lack of skill on the part of the Maurya craftsman, who was unsurpassed in the cutting, carving and polishing of hard stones.

Wider use of soft stones under Greeks and their successors

With the advent of the Bactrian Greeks at Taxila the carving of stone in relief and the turning of it on the lathe into vessels became increasingly common, and in the later cities on the Sirkap site we find not only far more objects made out of soft

stone but several more varieties of stone introduced. For vessels and other small household objects, the stones that now come into use (besides several kinds of slate, steatite and sandstone) are: schist, micaceous schist, hornblende schist, phyllite, phyllitic slate and indurated clay or mudstone; while the stones in use for sculpture are schist, micaceous schist, chloritic schist, quartz mica schist, phyllite, steatite or soapstone of various kinds, Tarakī grey sandstone and red ferruginous claystone. Of these, the commonest by far and the most important are the several kinds of schist and the dark grey phyllite which is used for the vast majority of Gandhāra sculptures. The use of both schist and phyllite was intimately bound up with the history of sculpture at Taxila. The earliest specimens of schist are the grey schist dishes nos. 38 and 39 and the carved toilet-tray no. 62, which are referable to the latter part of the second century or the beginning of the first century B.C. From that time onwards schist comes more and more into vogue, and during the Parthian domination is used commonly for caskets, household vessels, lamps and sculptures. For the last mentioned, a chloritised micaceous schist was at first favoured in preference to other stones, phyllite then being exceedingly rare, even for household vessels, but in the first century A.D. phyllite began to supersede schist, no doubt owing to its being more durable in other respects and less liable to split in the process of carving; and from that time onwards nine-tenths or more of the carvings found on the North-West Frontier and at Taxila are made of this stone.

Provenance of schist and phyllite

The precise provenance of the several kinds of schist and phyllite stones is not known, but there can be no doubt that all of them came from quarries in the Gandhāra region, probably in the neighbourhood of Southern Swāt, since it was there that the Gandhāra School of sculpture had its chief centre, and we may be sure that, wherever that centre was, the stone quarries could not have been far distant. Moreover, had the quarries been in the old North-West Frontier itself—that is, within the confines of what until recently was British India, it is virtually certain that they would long ago have been discovered. Some day, no doubt, they will be located, and it may be that fresh light will then be thrown on the history of this important school of sculpture. In the meantime it would be a helpful step, particularly for elucidating the early chronology of this school, if someone equipped with sufficient knowledge of the subject would examine the various collections of these sculptures in India and Europe and classify them according to the varieties of stone used.

The stratigraphical chart which follows (pp. 482–3) shows the generic classification of the stone objects described below and their distribution in the successive strata of the Bhiṛ Mound and Sirkap, as well as on other sites. These objects do not include the stone sculptures of an ornamental and mainly Buddhist character described in chapter 36.

Some general remarks on the stone objects from the Bhiṛ Mound will be found in vol. I at pp. 102, 105, 108–9, 111; and on those from Sirkap at pp. 128, 133–4, 205, 207, 209–10. Other references are given in the individual entries of the catalogue below.

STRATIGRAPHICAL CHART OF STONE OBJECTS

Class	Bhir Mound strata: IV 5th to 6th century B.C.	Bhir Mound strata: III 4th century B.C.	Bhir Mound strata: II Maurya	Bhir Mound strata: I Surface	Sirkap strata: VII ?Pre-Greek	Sirkap strata: VI–V Greek	Sirkap strata: IV Early Śaka	Sirkap strata: III–II Late Śaka-Parthian	Sirkap strata: I Surface	Other sites[1]	Class
I. Prehistoric artefacts (nos. 1–5)	—	—	—	—	—	—	2	1, 3–5	—	—	I
II. Pivot-stones (nos. 6–10)	8	—	—	6, 9	—	—	—	7, 10	—	—	II
III. Querns (nos. 11–18)	—	13	—	14, 15	—	—	—	16, 17, *b*, 18	11, 12, 17, *a*	—	III
IV. Mullers (nos. 19–26)	19	20–3	—	24	—	—	—	25, 26	—	—	IV
V. Grinding-mills (nos. 27–31)	—	—	—	—	—	—	—	27, 30, 31	—	28 from Kun. 29 from Pl.	V
VI. Pestles and mortars (nos. 32–5)	34	32	—	—	—	—	—	33, 35	—	—	VI
VII. Dishes (nos. 36–41)	—	—	36, 37	—	—	38, 39	—	40, 41	—	—	VII
VIII. Saucers (nos. 42–7)	—	—	42	—	—	—	44	43, 45, 47	46	—	VIII
IX. Standard cups (nos. 48, 49)	—	—	48	—	—	—	—	49	—	—	IX
X. Bowls (nos. 50, 51)	—	—	50	—	—	—	—	—	—	51 from Ml.	X
XI. Open-mouthed vases with flat bases (nos. 52–6)	—	—	—	—	—	—	—	52, 54–6	53	—	XI
XII. Unguent vases (nos. 57–59, *a*)	—	—	—	—	—	57	—	58	59	59, *a* from Jl.	XII
XIII. Goblets (nos. 60, 61)	—	—	—	—	—	—	—	60, 61	—	—	XIII
XIV. Trays (nos. 62–97)	—	—	95, 96	—	—	63	62, 78, 79, 82–4	64, 65, 67–9, 71, 73–7, 80, 81, 85–90, 92–4, 97	66, 70, 72	91 from Dh.	XIV
XV. Toilet caskets (nos. 98–106)	—	—	—	—	—	104 *e*	—	98–104, 104, *b–d*, 105	106	104, *a* from Ml.	XV

XVI. Shell-shaped ladles (nos. 107, 108)	—	—	—	—	—	—	—	—	107	—	XVI
XVII. Lamps (nos. 109–17)	—	—	—	—	—	—	109	113, *b*	110	111, 113, *c*, *d* and *e*, 116, 117 and 117, *a*, *b* from Dh. 112 and 113, *a* from Mm. 114 from Ml. 115 from Jl.	XVII
XVIII. Burnishers and polishers (nos. 118–20)	—	—	118	—	—	—	—	119, *a–c*, 120	—	—	XVIII
XIX. Touchstones (no. 121)	—	—	—	—	—	—	—	121	—	—	XIX
XX. Palettes (nos. 122, 123)	—	—	—	—	—	—	—	—	122	123 from Jl.	XX
XXI. Spindle-whorls (no. 124)	—	—	—	—	—	—	—	124	—	—	XXI
XXII. Potters' *honoras* and *thatwās* (nos. 125–8)	—	—	—	—	—	—	—	125–7	—	128 from Ss.	XXII
XXIII. Amulets and other sacred objects (nos. 129–37)	—	131	129, 130	—	—	135	—	132, 136, 137	—	133 from Ss.	XXIII
XXIV. Stones for inlay, incrustation, etc. (nos. 138, *a–f*, 139)	—	—	138, *c*, *d*	138, *a*, *b*	—	138, *e*	—	138, *f*, 139	—	—	XXIV
XXV. Eyes and *ūrṇās* of images (nos. 140, *a–c*)	—	—	—	—	—	—	—	140, *a*	—	140, *b*, *c* from Dh.	XXV
XXVI. Moulds (nos. 141–52)	141	—	—	—	—	142, 143	—	144, 148, 151, 152	—	—	XXVI
XXVII. Miscellaneous (nos. 153–65)	—	—	157, 163	—	156	—	162	154, 159, 161, 164	158, *b*	153 from Ml. 155 from Jl. 160 and 165 from Dh.	XXVII
XXVIII. Weights	—	—	—	—	—	—	—	—	—	—	XXVIII

Note. The following objects picked up from spoil earth or debris are not included in the above list, viz. no. 134 (amulet) from Bhir Mound; nos. 104 (toilet casket), 18 (ladle), 149, 150 (moulds), and 158, *a* (broken marble object) from Sirkap.

[1] Dh. = Dharmarājikā; Jl. = Jaṇḍiāl; Kun. = Kunāla; Ml. = Mahal; Mm. = Mohṛā Morādu; Pl. = Pippala; Ss. = Sirsukh.

TABLE SHOWING DISTRIBUTION OF STONE OBJECTS IN SIRKAP

Block	Stratum VII ? Pre-Greek	Strata VI–V Greek	Stratum IV Early Śaka	Strata III–II Śaka-Parthian	Stratum I Surface
			East side of Main Street		
1	—	—	—	—	—
A	—	—	—	74, 136	—
B	—	—	—	30, 126	11, 12
C	—	—	109	55, 92, 127	—
D	—	—	—	87, 159	—
E	—	—	—	43, 45, 86	110
F	—	—	—	102, 146, 164	—
G	—	—	—	4, 40, 60, 145	66, 72, 107
H	—	—	—	16	—
I	—	—	—	26	—
J	—	—	—	—	158, *b*
K	—	—	—	99	—
L	—	—	—	—	—
			West side of Main Street		
1′	—	—	82, 162	18, 90, 120	—
A′	—	63, 135, 138, *e*, 142, 143	2	3, 54, 58, 119, *a*, 144, 152	—
B′	—	38, 39, 57	62	35, 67, 69, 154	—
C′	156	104, *e*	—	47, 49, 56, 77, 85, 137, 151	—
D′	—	—	84	41, 98, 100, 101, 139, 140, *a*, 147, *a*, *b*, 148, 161	17, 46, 70
E′	—	—	79, 83	7, 25, 73, 75, 76, 89, 94, 105, 121	53, 122
F′	—	—	44	64, 65, 68, 88, 124	—
G′	—	—	78	71, 103	106
H′	—	—	—	—	—
K′	—	—	—	93	—
Main Street	—	—	—	132	—
Second Street (east)	—	—	—	61	—
Sixth Street (west)	—	—	—	52	—
Seventh Street (west)	—	—	—	97	—

Note. Objects found in trial trenches or in spoil earth are not included in the above Table.

Class I. *Prehistoric artefacts* (nos. 1–5)

The number of prehistoric artefacts is very small. Up to the present no prehistoric settlement has been discovered at Taxila, nor is there any reason to suppose that any ever existed there. The few celts and one mace-head described below were found in strata of the historic period on the Sirkap site, dating back no further than the first centuries B.C. and A.D. How they came to be present in these late strata can only be surmised, but a possible explanation is that stone weapons may have continued to be used for sacrificial or other ceremonial purposes many centuries

after the Neolithic and Chalcolithic Ages had passed, just as stone knives continued to be used until a late date for religious sacrifices by the Egyptians and Jews. On the other hand, it is noteworthy that the few artefacts found at Taxila are for the most part made of rare and striking stones, viz. green epidiorite, epidote-quartz, nephrite-jade and blue serpentine, and it may well be that such striking objects were kept in later times merely as curiosities or talismans.

1. Sk. '27; Trench D78; stratum II. Polished celt of fine-grained light green epidiorite, with slightly crescentic edge and flattened butt. Length 3·75 in. Sp. gr. of epidiorite = 3·14. (Pl. 140, *a*.)

2. Sk. '28–211; Block A'; sq. 15·86'; stratum IV. Short, splayed celt of dark green epidote-quartz, with crescentic cutting edge; polished. Length 2·68 in. Sp. gr. of stone = 2·98. (Pls. 140, *b*; 143, *a*.)

3. Sk. '29–1,163; Block A'; sq. 19·94'; stratum III. Short celt of polished nephritic jade, with crescentic cutting edge. Length 3·25 in. Sp. gr. of stone = 2·96. Cf. p. 195 *supra*. (Pl. 140, *c*.)

4. Sk. '17–585; Block G; sq. 100·58'; stratum III. Long celt of the Bandelkhand type, of grey quartzite, with blunted crescentic edge. Cf. p. 168 *supra*. Length 5·12 in. (Pl. 140, *g*.)

5. Sk. '16; Trench A728; stratum II. Pear-shaped mace-head of blue serpentine, of a type found at Mohenjo-daro and Harappā as well as in Western Asia. Cf. *M.I.C.* I, p. 36, and II, p. 459. (Pl. 140, *d*.)

Class II. *Pivot-stones* (nos. 6–10)

Pivot-stones were used for two purposes, either for potter's wheels, with a small depression in the centre for the tenon of the wheel to turn in, or for house-doors, with a much larger cavity to take the projecting tenon at the bottom or top of the door. In both types a hard stone such as gneiss, quartzite, hornblende or granite was used, sometimes in the form of a natural pebble.

Type *a*. *Wheel-sockets*.

6. Bm. '19–G 53; stratum I. Circular slab of grey gneiss stone, with a small cavity sunk in the middle of one face. Diam. 7·12 in.

7. Sk. '19–869; Block E'; sq. 73·99'; stratum II. Natural pebble of white quartzite with a small cavity in one face. Length 5·25 in. Cf. p. 184 *supra*.

Type *b*. *Door-sockets*.

8. Bm. '19–1,801; sq. 5·59'; stratum IV. Circular pivot-stone of gneiss, with hole in middle pierced through the thickness of the stone. Diam. 5·5 in.

9. Bm. '20–1,582; sq. 14·30'; stratum I. Similar, of red granite, but with shallow depression on one side only. Diam. 5·75 in. (Pl. 143, *b*.)

10. Sk. '16; Trench A725; stratum II. Similar to no. 8, but of hornblende-gneiss. Diam. 5·12 in.

Class III. *Querns* (nos. 11–18)

The oldest form of quern in India is the slab or saddle-quern, specimens of which have been found among the Chalcolithic ruins of Harappā and Mohenjo-daro (cf. *M.I.C.* pp. 25, 456–7). Querns of a similar type, dating from the first century A.D., occur on the Sirkap site at Taxila, and are still widely used in India as *sil* or *kari* stones, though rarely for the grinding of grain. Strange to say, no

querns of this type have been found in the Bhir Mound settlement, which is anterior to about 200 B.C. The quern then in use was the stool-quern with four legs. For Egyptian stool-querns, cf. Flinders Petrie, *Tools and Weapons*, Pl. LV, no. 105—a type which is found in ancient Egypt as early as the IVth Dynasty. The Indian examples are usually decorated with simple designs, which, as time went on, became more and more ornamental. Whether this type of quern was used generally for the grinding of corn is questionable. The ornamental carvings on many of the specimens suggest that they were meant for the grinding of spices, *kari*, etc., rather than of corn. It is true that the earliest example of the circular grinding-mill found at Taxila is not earlier than the first century A.D., but it is quite possible that the grinding of cereals was chiefly done at or near the farms where the grain was grown, not in the city. On the other hand, the grinding-mill is found in most of the early medieval monasteries, and this fact, contrasted with its complete absence from any of the earlier settlements, goes far to show that it did not supersede the quern until after the beginning of the Christian era. For Greek and Roman grindstones and mills, cf. Dar. et Sag. III, p. 1960 and IV, p. 167.

Type *a*. *Slab or saddle-querns*.

11. Sk. '24–9; Block B; sq. 37·50'; stratum I. Saddle-quern of quartzite without ornament. Size 16 × 6 in.

12. Sk. '24–200; Block B; sq. 36·50'; stratum I. Similar. Size 15 × 5 in. Cf. p. 148 *supra*. (Pl. 143, *d*.)

Type *b*. *Stool-querns*.

The stool-quern is invariably made of sandstone, never of quartzite or other hard stone, and is usually decorated with carvings in relief. Some of the earlier specimens from the Bhir Mound have the upper surface scored with zigzag lines or other patterns lightly incised. In the later specimens of Mathurā sandstone from Sirkap the carving is much more elaborate, and at one end the quern slab usually projects well beyond the legs and is supported on brackets.

These specimens were no doubt made by the stone-carvers of Mathurā and brought thence to Taxila.

13. Bm. '24–502; sq. 15·57'; stratum III. Stool-quern of red Mathurā sandstone, with four legs. Plain. Size 11·5 × 5 × 5 in.

14. Bm. '19–5; sq. 62·5'; stratum I. Similar, of quartzite sandstone with parallel zigzag lines scored on upper surface. Size 14 × 6 × 6·12 in.

15. Bm. '19–4; sq. 62·5'; stratum I. Similar, of grey sandstone. Size 13·75 × 6·75 × 6 in. The top is incised with parallel zigzag lines, and various emblems, including pairs of fishes, *dharmacakras* and two figures which faintly resemble the image of Jagannāth. (Pl. 140, *f*.)

16. Sk. '26–1,804; Block H; sq. 118·55'; stratum II. Similar, but of red Mathurā sandstone, with projecting end carried on *makara* brackets. Length 11 in. The sides and legs are ornamented with floral patterns in low relief. Cf. p. 169; *A.S.R.* (1926), Pl. XXVIII, no. 12 and p. 118, no. 12. (Pl. 140, *e*; 143, *c*.)

17. Sk. '28–1,122, 1,140 and 1,222; Block D'; sq. 65·97'; stratum I and stratum II. Similar, of spotted red Mathurā sandstone, with projection at one end. On the other end, engraved in low relief, are two pairs of fishes with small lotus flower, and above, two larger lotuses in

squares; on each side is a lotus 'Tree of Life' (*kalpa-laṭā*) springing from a vase with fishes in each bend of its sinuous stalk. The bracket supporting the projecting end was in the form of a *yakshī* or *vṛikshadevi*, of which only the head remains. The quern, which is 13·5 in. long, is broken in three pieces, and two of the legs, with the front brackets, are missing. Cf. p. 190 *supra*. (Pl. 140, *h*.)

18. Sk. '21–15; Block 1'; sq. 13·77'; stratum II. Similar, of reddish sandstone with projecting end, decorated with simple swag-like border, swastika and *triratna* devices. Length 14·5 in. Cf. p. 196 *supra*. (Pl. 140, *i*.)

CLASS IV. *Mullers* (nos. 19–26)

The mullers used with these querns are generally between 9 and 11 in. in length (but some are shorter) and 2 to 3 in. in diameter. Some are made of basalt, quartzite, hornblende or other hard stone; others of sandstone. The former are used along with the hard-stone querns, the latter with the sandstone ones. The most orthodox shape seems to have been a long slightly barrel-shaped cylinder. Some, however, were true cylinders, and others were natural pebbles rubbed roughly into shape. Many of the cylindrical specimens have been worn down by use in the middle or flattened on one side. The following few examples from among the many found on the Bhiṛ Mound and in Sirkap will suffice.

19. Bm. '19–1,325; sq. 58·6'; stratum IV. Stone muller of green quartzite; broken. Length 4·62 in.

20. Bm. '19–812; sq. 10·38'; stratum III. Similar, of basalt; broken. Length 4·87 in.

21. Bm. '19–1,519; sq. 5·61'; stratum III. Similar, of green quartzite. Length, 5·25 in.

22. Bm. '19–654; sq. 10·36'; stratum III. Similar, of quartzite sandstone, highly polished by the rubbing. Lenticular in section in the middle. Length 6·93 in.

23. Bm. '19–654; sq. 10·36'; stratum III, but probably a stray from stratum I. Similar, of Chunar sandstone, highly polished; barrel-shaped but worn down on one side. Size 6·8 × 2·5 × 1·78 in. (Pl. 140, *j*.)

24. Bm. '19–1,592; sq. 62·5'; stratum I. Similar, of Chunar sandstone; barrel-shaped. Length 9·25 in.

25. Sk. '19–326; Block E'; sq. 76·100'; stratum II. Similar, of purple-grey quartzose sandstone, cylindrical and slightly barrel-shaped, with flat ends. Highly polished with wear. 9·75 in. long and 2·75 in. diam. Cf. p. 184 *supra*.

26. Sk. '26–354; Block I; sq. 135·62'; stratum II. Similar, of fine-grained chloritic quartzite. A singularly fine specimen of dark grey-green colour and perfectly cylindrical in shape, with flat ends. Length 8·37 in. Sp. gr. of stone = 2·66. Cf. p. 171 *supra*.

CLASS V. *Grinding-mills* (nos. 27–31)

Type *a*. As indicated above, circular grinding-mills came into use at Taxila for the first time during the late Śaka-Parthian period. The earliest specimen is no. 27.

27. Sk. '12; Trench A 461; stratum II. From Sirkap; made of grey Tarakī sandstone. Diam. 16·5 in. In this and the following specimens, the centre hole, through which the grain was introduced, was pierced through the nether as well as the upper millstone, the nether hole being then plugged with wood and furnished with a pivot or spike. In no. 27, the upper stone is convex above, concave underneath, thinning rapidly towards the edge, while the nether is convex above in order to fit with the upper one. As this grinding-mill was meant to be worked by two persons, the upper stone was provided with socket-holes for two handles. (Pl. 140, *k*.)

28. Sk. '14–844. This is a later example of the fifth century A.D. from the Kunāla monastery. The surfaces between the two stones, instead of being curved, slope downwards in a straight line to the outside; there is a projecting boss on the upper stone round the central hole, and towards this boss the top surface of the upper stone has a gentle slope. This mill is also made of Tarakī grey sandstone and has a slightly bigger diameter (16·62 in.) than no. 27, but it is provided with a socket-hole for one handle only. Possibly the changes introduced in the shapes of the stones and other details had tended to reduce the friction and so lessen the labour. (Pls. 140, *l*; 143, *h*.)

29. The third grinding-mill illustrated on Pl. 140 is of a heavier type. It comes from the Pippala monastery (Pl. '21–38) and probably dates from the fifth century A.D. In diameter (13 in.) it is smaller than the two preceding examples, but the stones are more ponderous, and it is made of hard dark grey quartzite instead of the softer sandstone. Three other noticeable differences are: first, that the surface of the nether-stone is concave (instead of straight, as in no. 28, or convex, as in no. 27); secondly, that crossing the upper stone from side to side is a deep groove into which a stout piece of wood could be fixed horizontally, with a handle projecting on either side; thirdly, that the hole in the nether-stone into which the centre pivot was fixed is not pierced through the entire thickness of the stone but sunk to rather less than half its thickness. (Pl. 140, *m*.)

Type *b*. *Crushing-mills*. This type of mill, which was also introduced at Taxila during the Śaka-Parthian period, was designed probably for the crushing and grinding of harder substances (e.g. *chunam*) than ordinary grain. It is made of hard quartzite instead of sandstone; the diameter is smaller (about 11 in. only); the nether-stone is conical at the top; and the upper stone takes the form of a deep heavy cylinder, concave below so as to fit on to the top of the nether-stone, and with a funnel-shaped hole above. Across its top is a deep groove, as in no. 29, to take the wooden handle-piece, the latter being pierced with a hole in its centre into which fitted the iron pivot of the nether-stone.

30. Sk. '24–14 and 268; Block B; sq. 36·57'; stratum II. Crushing-mill of quartzite in two pieces (height 21·5 in.; diam. 10·8 in.), with centre pivot of iron still fixed into the nether-stone. See drawing on Pl. 140, *s*, and photos on Pl. 143, *e*, *f*, *g*.

31. Sk. '12; Trench A 461; stratum II. Similar, of quartzite (height 16·5 in.; diam. 11·5 in.), with iron pivot still attached to nether-stone; but in this specimen the nether-stone is not so high as in no. 30.

General remarks on household and toilet vessels, etc.

Vessels made of stone are relatively few in the earlier Bhiṛ Mound cities and are restricted to those of simple shapes—mortars (with pestles), dishes, saucers, bowls and cups. The stones used for them are the hard *abri* (lower cretaceous shell limestone) and hornblende-gneiss, soft steatite and alabaster, and the semi-precious rock crystal and agate. Of alabaster there is only one example—a saucer of pinkish-white colour, no. 42. *Abri* and hornblende-gneiss were used during this early period for pestles and mortars; *abri* also for cups and bowls; steatite (soapstone) for bowls and dishes; crystal for little toilet-trays; and agate for ornamental bowls, of which there is only one example. These stones were usually turned on the lathe, but sometimes ground down by hand.

Schist, as already indicated, was not introduced at Taxila until after the advent of the Bactrian Greeks (*c.* 190 B.C.); but from that time onwards this soft stone

came more and more into vogue, first for simple articles like dishes and carved toilet-trays, but later on for a multitude of vessels and sculptures of all sorts. The earliest objects made of this stone are the two lathe-turned dishes nos. 38 and 39, and the two ornamental toilet-trays nos. 62 and 63, all four of which are referable to the second century B.C. Later on, in the first century A.D., we find schist being used for vases of many shapes, goblets, caskets, ladles and lamps, besides unguent-bottles and elaborately carved toilet-trays. The three kinds of schist employed for these articles are the common grey schist of Gandhāra, and a micaceous and hornblende schist from the same region; quartz mica-schist and the deep green chloritised mica-schist, favoured at this period by the sculptors of the North-West, were not used for household articles.

Other soft stones employed during this period were steatite, phyllite, slate, claystone and alabaster, but so far as Sirkap is concerned, no household objects made of these stones have been found in strata earlier than the Parthian, and even then their use is restricted to a few articles—mainly toilet-trays and caskets. Specimens made of phyllite, slate, claystone and alabaster are very few; those of steatite are not so rare.

During the Kushān period phyllite, as we shall see, was to become the favourite stone for sculpture, and other objects were to be made from it as well as from the other soft stones named above, which continued in use up to the early medieval period.

With the introduction of schist for household vessels in the second century B.C., hard stones like gneiss and hornblende gradually ceased to be used for this purpose. Apart from pestles and mortars, for which particularly hard varieties of stone are needed, only one example (no. 43) of a hard stone vessel has been found in Sirkap, and there is reason for believing that this was a survival from one of the earlier settlements.

In regard to the use of agate for small bowls, cups, caskets, etc., the fragments of these vases found at Taxila correspond very closely with Pliny's description of the famous *vasa myrrhina*, which fetched such big prices at Rome. Pliny alleges that these vases came from Parthia and Carmania, but no importance need be attached to his statement, because, up to the time when the Red Sea route was opened up, the carrying trade between India and the West was exclusively in the hands of the Parthians, and it is hardly likely that the precise provenance of some of the goods would be known to the Romans.[1] The manufacture of agate vases is an age-old industry in India, especially in Kathiāwār and round about the gulf of Cambay, and there can be little doubt that it was from there that the Parthian merchants exported them to Italy. On the strength of a line of Propertius,[2] it has been inferred (e.g. Ramsay and Lanciani, *Manual of Roman Antiquities*, p. 497), that the myrrhine vases must have been some sort of porcelain, but the *foci* referred to by Propertius were not ordinary kilns but the special trenched kilns in which it was the Indian practice to roast agates and carnelians in order to bring out their colours. This process of burning agates was fully described by Barbosa as far back as 1517. Cf. Sir G. Watt, *Commercial Products of India*, p. 561, and Schoff, *Periplus*, pp. 193–4.

[1] Schoff, *Periplus*, p. 194. [2] 'Murreaque in Parthis pocula cocta focis' (IV, V, 26).

CLASS VI. *Pestles and mortars* (nos. 32–5)

Pestles and mortars are found at all periods at Taxila. The mortar takes the form of a cup with a shallow depression at the top and with a round or flat base. The pestle resembles a small, short muller worn at the ends instead of the sides. Both are invariably made of hard stone such as *abri*, gneiss, hornblende, hornblende-gneiss or syenite.

32. Bm. '30–931; sq. 30·66'; stratum III. Cup-shaped mortar of hornblende-gneiss, with flat bottom. Diam. 8·12 in. (Pl. 140, *q*.)

33. Sk. '16; Trench A254; stratum II. Cup-shaped mortar of hornblende-gneiss, with rounded bottom. Diam. 4·5 in. (Pl. 140, *t*.)

34. Bm. '19–1,485; sq. 10·36'; stratum IV. Pestle of hornblende; length 7·37 in.

35. Sk. '19–475; Block B'; sq. 31·99'; stratum II. Pestle of hornblende; length 3·75 in. Cf. p. 194 *supra*.

CLASS VII. *Dishes* (nos. 36–41). Cf. 'Pottery', ch. 23, Class XVI, *a*, *b*; 'Iron', ch. 27, Class IV; 'Copper and Bronze', ch. 28, Class XVII, *a*, *b*; 'Silverware', ch. 29, Class V

36. Bm. '20–789; sq. 30·28'; stratum II. Part of rim of shallow dish of *abri* (lower cretaceous shell limestone). Length 6·12 in.

37. Bm. '19–1,333; sq. 5·62'; stratum II. Dish of fine grey and white hornblende-gneiss, turned on lathe. Diam. 9·62 in. Rim and bottom much damaged. (Pls. 140, *o*; 143, *l*.)

38. Sk. '29–2,451; Block B'; sq. 32·86'; stratum V. Broken rim of a large dish of grey schist, decorated with incised concentric circles. Diameter of dish, when complete, 16 in. Of very fine workmanship, turned on lathe.

39. Sk. '29–2,571; Block B'; sq. 36·89'; stratum V. Broken dish, resembling Greek *phialē mesomphalos*, of grey micaceous schist, with central boss inside surrounded by concentric circles. Diam. 8 in. Rim and upper part missing. Similar to certain earthenware, silver and copper dishes with central boss (*omphalos*). For this and the following, cf. 'Pottery', ch. 23, no. 109; 'Silverware', ch. 29, no. 10; 'Copper and Bronze', ch. 28, no. 289. (Pl. 140, *n*.)

40. Sk. '13–198; Block G; sq. 108·62'; stratum II. Similar. Diam. 6·5 in. Rim missing. Cf. p. 168 *supra*. (Pls. 140, *p*; 143, *m*.)

41. Sk. '29–1,807; Block D'; sq. 61·92'; stratum III. Fragment of a dish of grey hornblende-schist; length 7 in. On inside, three concentric circles incised; on outside, foliate border in relief; beneath, square projection with socket-hole for leg. A particularly attractive vessel of Parthian date, in the Gandhāra style. Cf. p. 190 *supra*. (Pl. 140, *v*.)

CLASS VIII. *Saucers* (probably for toilet use; nos. 42–7). Cf. 'Pottery', ch. 23, Class XV; 'Iron', ch. 27, Class IV; 'Copper and Bronze', ch. 28, Class XVII, *c*, *d*; 'Silverware', ch. 29, Class V

42. Bm. '20–863; sq. 26·26'; stratum II. Saucer of pinkish white alabaster, turned on lathe. Diam. 4·25 in. (Pls. 140, *w*; 143, *p*.)

43. Sk. '13–1,215; Block E; sq. 74·52'; stratum II. Similar, of hornblende-gneiss, turned on lathe. Diam. 4·37 in. Cf. p. 162, no. 7 *supra*.

Although this saucer was found in the Śaka-Parthian stratum in Sirkap, it was probably older by some two centuries or more. No other example of a vessel made of hard stone has been found in Sirkap, and in this case the shape, and its blunted exterior mouldings, point to an earlier date. Saucers of the Parthian period, if they have mouldings at all, usually have them sharply

defined, and are almost always carinated like the specimens described below, with which we may compare also the earthenware saucer no. 107 (p. 418). (Pl. 143, *j*.)

44. Sk. '28–2,211; Block F'; sq. 84·89'; stratum IV. Saucer of grey schist, finely turned on lathe; carinated sides and everted lip. Incised concentric circles in bottom, inside. Diam. 2·37 in.

45. Sk. '13–1,332; Block E; sq. 69·61'; stratum II. Saucer of micaceous schist, with carinated sides and everted rim. Border of lattice triangles on rim and foliate pattern below, inside. Diam. 4·25 in. Cf. p. 162, no. 8 *supra*. (Pls. 140, *r*; 143, *k*.)

46. Sk. '20–764; Block D'; sq. 57·92'; stratum I. Similar, of grey schist, with incised network on everted rim, and quatrefoil rosette on bottom, inside, surrounded by foliate circle. Diam. 3·62 in. Cf. p. 190 *supra*. (Pls. 140, *u*; 143, *i*.)

47. Sk. '14–481; Block C'; sq. 41·78'; stratum II. Similar, but with flat base and rounded sides. Quatrefoil rosette on bottom, surrounded by concentric circles. Diam. 2·62 in. Cf. p. 193 *supra*. (Pl. 140, *x*.)

CLASS IX. *Standard cups* (nos. 48, 49). Cf. 'Pottery', ch. 23, Class XX, *a*

The difference between the earlier and later saucers noticed above extends also to the standard cups or low tazzas described below. No. 49, which comes from the Śaka-Parthian city in Sirkap, has a much more stylish and sharply defined form than no. 48, which comes from the Maurya level in the Bhiṛ Mound.

48. Bm. '20–1,568; sq. 17·33'; stratum II. Standard cup of hard *abri* stone, turned on lathe. Diam. 3·87 in. (Pl. 140, *y*.)

49. Sk. '14–966; Block C'; sq. 45·80'; stratum II. Similar, but of grey schist, with incurved sides and wide angular rim. Diam. 3·6 in. Cf. p. 193 *supra*. (Pl. 140, *z*.)

CLASS X. *Bowls* (nos. 50, 51). Cf. 'Pottery', ch. 23, Class XV; 'Iron', ch. 27, Class III; 'Copper and Bronze', ch. 28, Class XVI; 'Silverware', ch. 29, Class IV

The only example of a stone bowl from the Bhiṛ Mound is the small bowl of highly polished agate no. 50, and the only example from Sirkap is the steatite one from the Mahal site, no. 51. The former is of the third century B.C., the latter of the second half of the first century A.D.

50. Bm. '21–983; sq. 16·63'; stratum II. Piece of banded-agate bowl, highly polished inside and out. Length 1·62 in.

51. Sk. (Ml.), '25–252; sq. 42·115'; 2 ft. 10 in. below surface. Small bowl of purple-grey steatite; diam. 3·25 in. Outside is ornamented with horizontal bands of incised linear designs —network, swags and lotus leaves—and a simple beading in relief. (Pl. 141, *a*.)

CLASS XI. *Open-mouthed vases with flat bases* (nos. 52–6). Cf. 'Pottery', ch. 23, Class VII

These correspond with Class VII of the pottery vessels, except that there is no example in stone of this type of vessel with a standard base. They are found only in the Śaka-Parthian city in Sirkap.

52. Sk. '27–1,342; Sixth Street (west); sq. 66·119'; stratum II. Small open-mouthed vase of grey hornblende-schist, with flat base, beading at base of neck, and three incised bands round body. The neck is pierced with four holes for suspension or for attaching a cover. Height 5·5 in. Cf. p. 184 *supra*. (Pl. 141, *b*.)

53. Sk. '28–715; Block E'; sq. 73·100'; stratum I. Similar and of same size, but with three bands of engraved leaves round body, and without any holes in neck. (Pl. 141, *c*.)

54. Sk. '20–220; Block A'; sq. 26·78'; stratum II. Similar to no. 53, but smaller, and with plain beading in relief round shoulder. Height 2·62 in. Cf. p. 195 *supra*. (Pls. 141, *d*; 143, *n*.)

Two small vases of this class are more open-mouthed and at the same time more squat than the above.

55. Sk. '24–614; Block C; sq. 47·54'; stratum III. Small open-mouthed squat vase of grey schist, with beading round base of neck; no rim. Incised bands below middle of body. Height 2·37 in. Cf. p. 149, n. 2 *supra*. (Pl. 143, *q*.)

56. Sk. '22–670; Block C'; sq. 43·86'; stratum II. Similar, of hornblende-schist, with flanged neck-beading, and incised bands round lip, neck and middle of body. Height 2·37 in. Cf. p. 193 *supra*. (Pl. 141, *e*.)

CLASS XII. *Unguent vases* (nos. 57–9, *a*). Cf. 'Pottery', ch. 23, Class III; 'Copper and Bronze', ch. 28, Class VI; 'Silverware', ch. 29, Class II

Only two complete specimens of this class of vessel have been found, both from the Śaka-Parthian city in Sirkap, but from the Greek level in the same site comes the fragment of a small cylindrical vessel of agate, which may have been used for the same purpose; and from Jaṇḍiāl a small phial of limestone, which was probably meant for some unguent or for kohl. The last-mentioned is of the early medieval period.

57. Sk. '29–2,480; Block B'; sq. 34·86'; stratum V. Fragment of a cylindrical vessel of agate, with outer surface incompletely polished. Length 2·25 in.

58. Sk. '20–166; Block A'; sq. 27·84'; stratum II. Pear-shaped *alabastron* of veined alabaster. Height 4·62 in. Cf. p. 195 *supra*. (Pls. 141, no. 58; 143, *r*.)

59. Sk. '27; Trench H56; stratum I. Tall cylindrical unguent vase of grey schist, with cordon and incised bands round body. Height 6·37 in. (Pls. 141, *f*; 143, *s*.)

59, *a*. Jl. '12–138; Mound C; 3 ft. below surface. Kohl or unguent bottle of limestone, turned on lathe. Height 1·87 in. Cf. p. 197 *supra*. (Pl. 141, *g*.)

CLASS XIII. *Goblets* (nos. 60, 61). Cf. 'Pottery', ch. 23, Class XIV; 'Copper and Bronze', ch. 28, Class XIV; 'Silverware', ch. 29, Class III

There are many goblets of earthenware, copper, bronze and silver belonging to the Parthian period at Taxila, but only two specimens in stone. Both are of the standard type, but owing to their material very heavy, inconvenient vessels, and without the widely flared mouth which distinguishes so many of the earthenware and metal specimens. Cf. 'Pottery', ch. 23, nos. 88–91; 'Silverware', ch. 29, nos. 5, *a*, *b*; 'Copper and Bronze', ch. 28, nos. 266–73. This standard type of goblet is identified with the Greek κιβώριον, Lat. *ciborium*, by Dar. et Sag. I, p. 1171, but on what grounds is not clear.

60. Sk. '13–173; Block G; sq. 108·62'; stratum II. Standard goblet of micaceous schist, decorated in low relief with band of quatrefoil rosettes between dog-tooth borders, and with lotus leaves below, springing upwards from the stem. Height 6·12 in. Damaged on one side and at foot. Cf. p. 168 *supra*; *A.S.R.* (1912), Pl. XXX, *d*. (Pls. 141, *j*; 143, *o*.)

61. Sk. '16–846; Second Street (east); sq. 14·58'; stratum II. Similar, of grey schist, with three-stepped base and plain stem; body decorated with three bands of triple incised lines. Height 4·62 in. (Pls. 141, *k*; 143, *t*.)

CLASS XIV. *Trays* (nos. 62–97)

Nearly all the articles under this head belong to the class of round toilet-trays usually divided into two or more compartments and embellished with figures or scenes sculptured in relief. Besides this important series of toilet-trays there are a few miniature trays of rock-crystal, emanating from the Bhir Mound, which in all probability were also meant for the toilet table, and a larger tray of hornblende micaceous schist from Sirkap, which was used no doubt for household purposes.

Type *a*. *Toilet-trays*. The ornamental toilet-trays are made of schist, steatite, indurated claystone, slate or phyllite. Of the thirty-three specimens described below, thirteen are of grey schist, eleven of micaceous schist, five of steatite, two of indurated claystone, one of slate, and one of phyllite or phyllitic slate. No. 64, which is probably of the Śaka period, is of steatite, but with this exception all of pre-Parthian date are of schist.

The subjects portrayed in these toilet-trays are not numerous. They comprise the following:

Subject	No. of specimens
(1) Satyr and nymph	1
(2) Figure reclining on couch attended by females[1]	2
(3) Drinking and dancing scenes	2
(4) Pair of figures (male and female) holding drinking-cups	5
(5) Lions, leogryphs, winged stag, hippocamps and other fish-tailed monsters with riders	6
(6) Ditto, without riders	14
(7) Geometric and floral designs	3

Most of these subjects are clearly Hellenistic, and there can be no doubt that this kind of toilet-tray was introduced with Hellenistic culture from the West, where specimens of them have been found, especially in Egypt.[2]

Local Indian influence, however, is to be seen in the lotus rosettes or leaves used as a background for many of the reliefs, in the *makara*-like treatment of some of the sea-monsters, and possibly also in the pairs of figures holding drinking-cups, though, as to the last, it is perhaps more likely that this motif, so familiar in the early Mathurā School, may also have had a Hellenistic origin.

In point of style no. 62, which comes from the Graeco-Bactrian city, has a distinctive character of its own, which apart from its place of finding would justify us in assigning it to the second century B.C. Instead of this tray being divided up, as nearly all the later examples are, into two or more compartments, the two figures occupy the centre of the field and stand out with effective simplicity against the plain background. The figures themselves are treated almost as if they were in the round, rather than in relief,[3] and the modelling of their forms, albeit sketchy,

[1] The same subject is also represented on the lid of the vessel no. 106 *infra*.

[2] E.g. Flinders Petrie, *Objects of Daily Use*, Pl. XXXIV, nos. 23–31.

[3] This characteristic of most Hellenistic relief work is shared also by the reliefs round the abacus of the Aśoka capital at Sārnāth, which, as I have shown elsewhere, was executed by a Greek or a Perso-Greek artist of the third century B.C. Cf. *C.H.I.* vol. I, p. 621, and Marshall and Foucher, *The Monuments of Sāñchī*, pp. 87, 88.

is more conscientious than in the later trays. There is a certain distinctiveness, also, about the style of no. 63, which dates probably from the first century B.C. and reflects the increasing decadence of Hellenistic art under Śaka rule. The scene is of course a purely Greek one, and, although the figures individually are crudely modelled and stiff and wooden in their poses, their composition still reflects the older Hellenistic tradition. In no. 65, on the other hand, we recognise the effect of the Graeco-Roman art popularised at Taxila under Parthian rule, with its more crowded figures, and much greater freedom of composition and drawing; and we are on quite safe ground in referring to the same century (first century A.D.) nos. 64, 66 and 76. But, apart from these few specimens, it is difficult to determine the respective ages of these toilet-trays on the strength of their style alone. This difficulty arises from the fact that, with the passing of the Bactrian Greeks and coming of the Śakas, Hellenistic art in India rapidly declined, but revived again in the first century under the rule of the Parthians, and though in the interim Hellenistic art in Western Asia had to some extent been Romanised and undergone considerable changes in consequence, nevertheless it is often impossible to determine whether a particular example of debased Indo-Hellenistic work was executed before or after the Parthian revival. And this is true not only of these stone carvings but of other branches of art as well. To be sure, the Indianised treatment of the couple in no. 70, so strongly reminiscent of the Mathurā School, enables us to relegate this particular piece with confidence to Parthian times, but it is not often that we get such light from the Indian side. Take, for example, nos. 78, 79 and 82. We infer from their findspots that they probably belong to the Śaka period, but from their style alone it would be impossible, in the present state of our knowledge, to affirm that they were not strays from the Parthian level above.

In regard to Graeco-Roman toilet-trays from Egypt, a paper by Sir John Evans in *Proc. Soc. Antiq.* (13 Feb. 1908) may be consulted, and also Flinders Petrie, *Objects of Daily Use*, ch. x, pp. 37–9, where he summarises whatever had then (1927) been published about these trays, their types and purpose.

62. Sk. '29–1,894; Block B'; sq. 35·89'; stratum IV. Circular toilet-tray of fine grey schist. Diam. 4·31 in. Round top of rim, beaded border, encircled by running spiral. In centre, erotic scene: to left, standing male figure, with hooded mantle over back; to right, kneeling woman clad in *himation* or shawl, which her companion is pulling from her. Beneath them, triple line of small rocks with larger rock on extreme right, which the woman holds with her left hand. On back of tray, full-blown lotus in low relief. This is a familiar scene in Greek art, the two figures being usually a satyr and a nymph, e.g. *Brit. Mus. Sculpture Cat.* no. 2202: a marble relief representing a bearded satyr pulling aside the mantle of a nymph. Cf. Baumeister, *Denkmaeler*, vol. III, p. 1564, and S. Reinach, *Répertoire des peintures grecques et romaines*, p. 125, no. 9. The figures are in high relief on a plain ground; the modelling is characteristic of the Hellenistic age and superior to that of any of the other toilet-trays. (Pl. 144, no. 62.)

63. Sk. '29–2,572; Block A'; sq. 15·98'; stratum V. Toilet-tray of grey schist, divided into two registers. Diam. 5·31 in. In the upper register, a draped male figure reclining on couch, with wine-cup in left hand. At head of couch, a draped female seated on stool, with a wine-cup in left hand. Behind the couch, a second female, standing, with garland in upraised right hand.

The figures are clad in the Greek *chiton* and *himation*. In the lower register, seven lines suggestive of a palmette. On rim, beaded border in low relief. This toilet-tray is referable to the first century B.C., when Hellenistic art was becoming barbarised under the rule of the Śakas. Observe that the figures in this scene are more widely spaced than in the later Parthian reliefs, in this respect being nearer to the Hellenistic tradition, in spite of their stiff and rigid formality. The wig-like treatment of the hair and the wide-open, prominent eyes are peculiarly characteristic of nascent Gandhāra sculpture during the late Śaka period. These traits are well exemplified also in nos. 70, 74 and 75, and in 'Stone Sculptures', ch. 36, nos. 3, 4, 12, 13, etc. Cf. p. 693 *infra*. For Yavanas reclining on couches as they eat or drink, see Schol. on Pānini, cited by S. Levy, *Quid de Graecis*, p. 22. (Pl. 144, no. 63.)

64. Sk. '28–1,486; Block F'; sq. 85·90'; stratum II. Half of a broken toilet-tray of yellowish brown steatite (soapstone), divided into two registers. Diam. 4·12 in. In the upper register, man reclining on bed and kissing woman, who is seated on stool by his side. On rim, four concentric circles. Two small holes drilled near centre and in rim appear to have served for rivets, when the tray was mended in old days. On the back is an inscription in Kharoshṭhī: (along the edge) *Thireasa tritavi(na) mudrao Uraśe Arya—Ro*...; (in the middle) *Thiraka*. Cf. p. 182 *supra*; *A.S.R.* (1928), Pl. xx, 11 and p. 57, no. 56. (Pl. 144, no. 64.)

65. Sk. '28–1,776; Block F'; sq. 85·89'; stratum II. Toilet-tray of greenish grey steatite (soapstone). Diam. 6·62 in. On rim, border of double arcading, incised. In centre, drinking scene.[1] Although the scene is a composite whole, filling virtually the entire field, it is divided by convention into three tiers separated one from the other by projecting floors, so that the figures in the upper and middle parts of the field may have something on which to rest their feet. In the top register, in centre, a man and woman are seated on a bench, the former clasping his companion with his left arm and holding a sceptre with his right, while she offers him a cup of wine. To left of them, a woman seated and draped, playing on a lyre; and, behind her, a youth playing on the Pan-pipes; to right, a standing male figure with his right hand wrapped in his mantle and his left holding a staff. In the middle register, to right, a large wine-vat, rising from acanthus leaves, in which two men, one on the back of the other, are treading the grapes, while a lad, in the centre, draws off the juice in a tall flagon (ὑπολήνιον). To the left, another man is carrying a wine-skin on his back and emptying its contents into a *krater*, while his companion on the left of the vase is raising a bowl to his lips. Below, in the bottom register, two figures are lying drunk. Framing the top of the scene from side to side is an undulating vine. The back of the plaque is relieved with concentric bands, both incised and in relief. Cf. *A.S.R.* (1928), Pl. xix, 1 and p. 56, no. 55. The style is typical of Hellenistic art of the first century A.D., and the relief is reminiscent of the 'Wedding of Ariadne and Bacchus'—a familiar scene in Graeco-Roman art. Cf. Dar. et Sag. II, p. 421; p. 182 *supra*. (Pl. 144, no. 65.)

66. Sk. '12–814; Block G; sq. 108·63'; stratum I. Circular toilet-tray of indurated light grey claystone, divided by partition into two registers. Diam. 5·25 in. In the upper register is a man dancing with two women, one on either side. The lower compartment is empty. On the rim, two concentric circles incised; on partition, short parallel lines. Of Parthian period; first century A.D. Cf. p. 168 *supra*; *A.S.R.* (1912), Pl. xxix, *b* and p. 32, no. 1. (Pl. 144, no. 66.)

67. Sk. '28–635; Block B'; sq. 34·92'; stratum III. Toilet-tray of grey schist (diam. 3·62 in.), divided into three compartments, with lotus rosette in background of all three. In upper compartment, upper halves of two draped figures holding wine-cups. On rim, toothed border; on partitions, diagonal lines incised. The workmanship is very rough, as if done by a wood-carver. Cf. p. 194 *supra*. (Pl. 144, no. 67.)

68. Sk. '28–2,159; Block F'; sq. 90·84'; stratum II. Toilet-tray of micaceous schist, divided

[1] Drinking and banquet scenes, it may be remarked, were favourite subjects of Parthian art. Cf. *C.A.H.* XI, p. 129.

into nine sunk compartments. Diam. 5·12 in. In centre are busts of male and female figures with wine-cups in their hands. Both wear necklaces. In each of the four corner compartments is a quatrefoil rosette. On the rim is a border of incised network, and on the back an incised lotus design. Cf. p. 182 *supra*; *A.S.R.* (1928), Pl. xx, 6 and p. 57, no. 60. (Pl. 144, no. 68.)

69. Sk. '19–695; Block B'; sq. 28·116'; stratum II. Toilet-tray of grey schist, divided into three compartments. Diam. 4·12 in. In the top compartment are the busts of a male and a female holding wine-cups in their hands. Behind them, half lotus rosette. On the rim is a network pattern incised; and on the partitions, toothed and cable beadings. On back, incised eight-petalled lotus. Cf. p. 194 *supra*. (Pl. 144, no. 69.)

70. Sk. '20–763; Block D'; sq. 57·92'; stratum I. Toilet-tray of grey schist divided into three compartments. Diam. 6·86 in. In the upper half are figured, in relief, a male and a female, three-quarter length, holding wine-cups in their hands. Both wear necklaces and the woman has a shawl (*sārī*) about her head and shoulders. On the rim is a double-cable border; on the partitions, a dotted cross pattern. The Indianised character of the figures and the concise quality of the carving point to the influence of the Mathurā School. Cf. p. 190 *supra*. (Pl. 144, no. 70.)

71. Sk. '29–2,285; Block G'; sq. 105·89'; stratum II. Fragment of a grey schist toilet-tray or perhaps the lid of a vessel, divided by radii into eight compartments, with lotus rosette in centre. Length 6·26 in. Each compartment contains a pair of figures, male and female, standing with wine-cups in their hands. Network and toothed borders on rim and partitions. Cf p. 181 *supra*. (Pl. 144, no. 71.)

72. Sk. '26–2,367; Block G; sq. 107·46'; stratum I. Broken toilet-tray of claystone, divided into two compartments. Diam. 4·5 in. In upper compartment, lion, with rider seated sideways, moving to right among rocks. In exergue, chequer pattern. Beaded border on rim and partition. Cf. p. 169 *supra*. (Pl. 144, no. 72.)

73. Sk. '27–501; Block E'; sq. 77·90'; stratum II. Toilet-tray of slate, divided into two compartments. Diam. 6 in. In upper compartment, to left, winged stag ridden by winged rider. To right, goat in foreground; winged lion behind. On rim, double arcading. On partition, narrow vandyke pattern. The exergue is plain. The style is unusual and appears to betray a certain measure of Indian influence. Cf. p. 184 *supra*. (Pl. 145, no. 73.)

74. Sk. '15–277; Block A; sq. 24·59'; stratum II. Circular toilet-tray of grey schist, without compartments. Diam. 4·62 in. In upper field, fish-tailed hippocamp with rider seated astride; below, palmette rays. Dog-tooth border on rim. Cf. p. 145 *supra*. (Pl. 144, no. 74.)

75. Sk. '27–607; Block E'; sq. 75·91'; stratum III. Similar, of grey micaceous schist, with a fish-tailed griffin and rider instead of hippocamp. Diam. 4·56 in. Broken on right side. Cf. p. 184 *supra*. (Pl. 145, no. 75.)

76. Sk. '28–763; Block E'; sq. 74·98'; stratum II. Similar, of micaceous steatite with sea-monster resembling Indian *makara*, ridden by a half-draped female figure holding a baby in left arm. Diam. 3·12 in. In exergue, acanthus leaf in low relief. Incised concentric circles on both sides of rim. On back, inscription of five Kharoshṭhī letters: *Maṁjuminasa*, i.e. of Maṁjumina—probably the name of the person to whom the object belonged. Parthian period. Cf. *A.S.R.* (1928), Pl. xx, 10 and p. 55, no. 42. The style of the carving resembles that of no. 65, but the workmanship is coarser. For the motif of a nereid riding on a hippocamp or sea-monster, see Roscher, *Lexikon*, *s.v.* 'Nereid'; also Dalton, *Treasure of the Oxus*, no. 197, Pl. xxvi (2nd ed.). Draped nereids were common in Greece in the fifth to fourth centuries B.C. Later, they were more often half-draped. Cf. p. 184 *supra*. (Pl. 145, no. 76.)

77. Sk. '29–306; Block C'; sq. 44·92'; stratum II. Similar, of grey schist, divided into two compartments. Diam. 5·43 in. In upper compartment, draped woman riding sideways on fish-tailed sea-monster. On neck of monster, uncertain object, which may be a garland. On rim, incised cable border. Cf. p. 193 *supra*. (Pl. 145, no. 77.)

78. Sk. '28–2,400; Block G′; sq. 102·82′; stratum IV. Similar, of micaceous schist, divided into nine compartments. Diam. 4·5 in. In the central compartment is a lion, and in the four larger compartments around are pairs of lotus leaves; in the smaller ones are quatrefoil rosettes; network border on rim; lotus on back. Cf. p. 181 *supra*. (Pl. 145, no. 78.)

79. Sk. '27–13; Block E′; sq. 67·115′; stratum IV. Similar, with two lions fronting each other in central compartment. Length 6·37 in. Fragmentary. (Pl. 145, no. 79.)

80. Sk. '13; Trench A461, *d*; stratum II. Toilet-tray of micaceous schist, divided into two compartments. Diam. 5·12 in. In upper compartment, winged griffin; in lower one, palmette or rays. On rim, scale border incised. Both motif and style suggest Persian influence. Cf. p. 161, no. 5 *supra*; *A.S.R.* (1912), Pl. XXIII, *a* and p. 28, no. 5. (Pl. 145, no. 80.)

81. Sk. '12; Trench A461, *c*; stratum II. Similar, of micaceous steatite, with serpentine. Diam. 5·62 in. Circular depression in centre with four compartments around, each containing a winged griffin seated. Style and period same as preceding example. (Pl. 145, no. 81.)

82. Sk. '29–2,455; Block 1′; sq. 12·99′; stratum IV. Similar, of steatite, divided into two compartments. Diam. 3·5 in. In upper compartment, a winged hippocamp with scaly body and fish-tail. In exergue, half-lotus rosette. Around rim, border of lotus petals with cable edging on side of partition. Śaka period. The motif is Hellenistic, but the style partly Indianised. (Pl. 145, no. 82.)

83. Sk. '22–801; Block E′; sq. 70·91′; stratum IV. Similar, of grey schist, with cable border on rim and reel-and-bead border on partition. Diam. 6 in. In upper compartment, winged sea-monster of *makara* type with garland (?) round neck. In exergue, acanthus lines. (Pl. 145, no. 83.)

84. Sk. '29–1,138; Block D′; sq. 60·112′; stratum IV. Similar, of whitish micaceous schist, divided into three compartments. Diam. 4·75 in. In upper compartment, winged monster on lotus background. Incised network border on rim; lotus on back. Cf. p. 190 *supra*. (Pl. 145, no. 84.)

85. Sk. '29–394; Block C′; sq. 51·87′; stratum III. Toilet-tray of grey-white micaceous schist. Diam. 4·87 in. In upper compartment, winged monster with scaly body, fish-tail and double pairs of horns, on lotus background. In exergue, half-lotus rosette. Lotus-leaf border round rim. Cf. p. 193 *supra*. (Pl. 145, no. 85.)

86. Sk. '12–1,336; Block E; sq. 76·65′; stratum II. Similar, of micaceous schist, with three compartments. Diam. 3·75 in. In the upper compartment, a fish-tailed winged monster; in lower ones, quarter-lotus rosette. Network border on rim. Cf. p. 162, no. 6 *supra*. *A.S.R.* (1912), Pl. XXIII, *b* and p. 28, no. 2. (Pl. 145, no. 86.)

87. Sk. '12–642; Block D: sq. 57·66′; stratum II. Similar, of dark grey mica-schist, divided into two compartments. Diam. 4·5 in. In upper compartment, winged fish-tailed sea-monster with hare-like head, on lotus background; in lower, lotus ground. Broken.

88. Sk. '29–2,292; Block F′; sq. 92·95′; stratum II. Similar, of schist-stone, divided into three compartments. Diam. 4·75 in. In the upper compartment, a winged *makara*-like sea-monster. Lotus ground in all three compartments. Network border round rim. Beading on partition, and lotus on back. Cf. p. 182 *supra*. (Pl. 146, no. 88.)

89. Sk. '27–1,649; Block E′; sq. 74·108′; stratum II. Similar, of grey schist, divided into two equal compartments. Diam. 5·87 in. Winged fish-tailed hippocamp in upper, on lotus ground; half-lotus rosette in lower. Both the hippocamp and the lotus are treated in a florid style. Beaded border on rim. Cf. p. 166, n. 1 *supra*. (Pl. 146, no. 89.)

90. Sk. '22–384; Block 1′; sq. 10·93′; stratum II. Similar, of grey schist, with three compartments. Diam. 4·37 in. Winged monster with *makara*-like head, but no fish-tail, in upper compartment; network border on rim. Crude lotus on reverse. Cf. p. 196 *supra*.

91. Dh. '15–613; T2; 2 ft. below surface. Similar, of grey schist, divided into four quadrants with circular depressions in centre. Diam. 4·5 in. Two quadrants contain lotus leaves, the

third a winged sea-monster, and the fourth a figure with human body and fish-tail legs. On one of the legs is seated a small female figure. Chevron pattern on partitions and chevron and scale border on rim. Five-petalled rosette in central depression. Cf. *A.S.R.* (1915), Pl. v, *b* and p. 8, no. 29.

For the two fish-tail legs, see Dar. et Sag. *s.v.* 'Aloadae' and R.U.C., ch. 39 *infra*, no. 94. (Pl. 146, no. 91.)

92. Sk. '24–316; Block C; sq. 50·51'; stratum II. Similar, of phyllitic slate. Diam. 4·5 in. In centre, swastika with four arms dividing the tray into four compartments. Engrailed border on swastika and on rim. Cf. p. 149 *supra*; *A.S.R.* (1924), Pl. XII, 5. (Pl. 146, no. 92.)

93. Sk. '15–841; Block K'; sq. 166·99'; stratum II. Similar, of micaceous schist. Diam. 4·75 in. Divided by curved cross into four sunk compartments with ground of lotus petals. Hatched and network border on rim; foliate medallion with beaded border on cross. Cf. p. 180 *supra*; *A.S.R.* (1915), Pl. VIII, *g*. (Pl. 146, no. 93.)

94. Sk. '27–501; Block E'; sq. 77·90'; stratum II. Similar, of mica-schist, with centre divided into nine compartments. Diam. 5·75 in. In the four corner triangles are quatrefoil rosettes. The other compartments are plain. On rim, double-cable border. Cf. p. 184 *supra*. (Pl. 146, no. 94.)

Type *b*. *Miniature trays of rock-crystal.* We may surmise that these were used for toilet cosmetics, but there is no proof of it. They have been found only in the Bhiṛ Mound.

95. Bm. '19–1,082; sq. 26·12'; stratum II. Fragment of crystal tray with projecting rim, through which a fine hole is pierced on one side. Length 1·5 in. Of fine workmanship; highly polished. The complete tray may have been in the form of a quadrant with three other trays making up the circle. (Pls. 141, *h*; 147, *a*.)

96. Bm. '21–983; sq. 16·63'; stratum II. Similar to preceding, but smaller, and with two holes pierced through two edges. Length 1·12 in. (Pls. 141, *i*; 147, *a*.)

Type *c*. *Household tray of soft stone.*

97. Sk. '22–676; Seventh Street (west); sq. 66·112'; stratum II. Rectangular tray of hornblende mica-schist with lug-handle on one side. Length 12·75 in. Broken. (Pl. 146, no. 97.)

CLASS XV. *Toilet caskets* (nos. 98–106)

Numbers of vessels of this class have been found in Sirkap and later sites, and, thanks to the fact that they were used not only for toilet purposes but as convenient receptacles for the sacred relics enshrined in stūpas, many of them are still in a perfect state of preservation. Usually they are made of grey or micaceous schist, but not infrequently of steatite; only one specimen is made of phyllite. Similar caskets, almost always of steatite, had been made in other parts of India—notably in Hindustān and Central India—as far back, at least, as the Maurya period and probably much earlier, but not a single specimen has been found in the Bhiṛ Mound. The earliest—belonging to the early Śaka period (first century B.C.)—comes from the Dharmarājikā.

The shapes of these caskets are not many. The commonest are globular and slightly squat, like the modern lady's puff-box, the division between body and lid being just above the middle; others are cylindrical and tall; others cylindrical and shallow, like the Greek *pyxis*; others again—and these are smaller in size—have a

spherical form with a small closely-fitting lid; and there is one—the earliest of all—which is square, and another which resembles a vase with wide-open mouth. Examples of these types are given below. For other examples, cf. Pls. 35, 36, 49 and 50.

Type *a*. *Globular and of slightly squat shape, the division between body and lid being just above the middle.*

98. Sk. '28–1,307, *a*; Block D'; sq. 63·96'; stratum II. Casket of grey schist, with lotus and other patterns in low relief round body and lid. Height 3·12 in. The knob-handle on the top of the lid, which is now broken, was made in a separate piece and affixed with cement. Cf. p. 190 *supra*.

99. Sk. '14–387; Block K; sq. 158·51'; stratum II. Similar to preceding, of grey schist. Diam. 4 in. Below the rim of the body is a band of incised network. Cf. *A.S.R.* (1914), Pl. XXVII, 8. Other examples of this type are Pl. 141, *p* (Sk. '26–3,067); Pl. 141, *q* (Sk. '14–160); Pl. 141, *r* (Sk. '13–50). All these are of grey or micaceous schist. Sk. '24–375 is of grey soapstone and Sk. '15–459 of phyllite. Cf. p. 176 *supra*. (Pl. 146, no. 99.)

Type *b*. *Tall, cylindrical shape.*

100. Sk. '19–1,342; Block D'; sq. 58·110'; stratum II. Cylindrical casket of steatite (height 3·37 in.), with two cordon mouldings in relief and broader bands of incised network and lattice triangles. Lid missing. Other examples of this shape, both of micaceous schist, are Sk. '22–923 and Sk. '12–762; and to the same type apparently belong also two small caskets, one of agate the other of rock-crystal, of which pieces only were found in the jeweller's store-jar in Block D'[1] (Sk. '19–933/22, length 1·87 in., agate; and Sk. '19–933/15, height 1·87 in., rock-crystal). Cf. p. 190 *supra*; *A.S.R.* (1919–20), Pl. X, 32 and p. 19. (Pl. 141, *m*.)

Type *c*. *Shallow, cylindrical shape, resembling the Greek* pyxis. Cf. 'Copper and Bronze', ch. 28, Class XI.

101. Sk. '28–1,086 and 1,136; Block D'; sqs. 62·105' and 61·106'; stratum II. *Pyxis*-shaped casket of grey schist (height 2 in.), with lotus-leaf band at base of body and incised circles above. Bands of concentric fluting on top of lid, calling to mind the fluting on the silver and bronze goblets nos. 5, *a*, *b*, 'Silverware', ch. 29, and nos. 272, 273, 'Copper and Bronze', ch. 28. Cf. p. 190 *supra*. (Pl. 141, *o*.)

102. Sk. '13–588; Block F; sq. 82·65'; stratum II. Similar to preceding but of coarse steatite, with sides tapering upwards. Round body, two lines of incised lattice triangles with parallel vertical lines between. Another example is figured in Pl. 141, *n* (Sk. '22–556). Cf. p. 166 *supra*. (Pl. 141, *u*.)

Type *d*. *Small and spherical, with lid inset.* All are of grey schist.

103. Sk. '28–2,041; Block G'; sq. 107·87'; stratum II. Small spherical casket of grey schist, adorned with six rosettes within concentric bands. Diam. 1·87 in. The lid, with one rosette, is missing. Cf. p. 181 *supra*. (Pl. 141, *s*.)

104. Sk. '30–558; spoil earth. Similar to preceding, but with different patterns round rosettes. Diam. 2·25 in. (Pl. 141, *t*.)

104, *a–e*. Other examples of this type of casket are Pl. 141, *v* (Ml. '23–137); Pl. 141, *w* (Sk. '24–970); Pl. 141, *x* (Sk. '26–4,022); and of the lids only: Pl. 141, *y* (Sk. '16–702).

Type *e*. *Square.*

104, *f*. Sk. '30–389; Block C'; sq. 50·90'; stratum VI. Square casket of grey steatite, with lattice pattern incised on outside. Size 2·375 in. sq. by 2 in.

[1] Cf. vol. I, pp. 188–9. Also nos. 138–40, 148, and Class XXVIII, nos. 1–25 *infra*.

Type *f*. *Vase-shaped.*

105. Sk. '28–1,042; Block E'; sq. 71·90'; stratum II. Vase-shaped casket of grey schist, with open mouth in lid. Height 4·75 in. Incised horizontal bands round body. Cf. p. 184 *supra*.

106. Here, too, should be mentioned the lid of a casket (Sk. '28–2,530; Block G'; sq. 115·91'; stratum I) of grey schist-stone, which is decorated with the same motif as the toilet-trays nos. 63 and 64, viz. a man lying on a couch with a wine-cup in his left hand, and two women in attendance, one with a wine-cup, the other fanning him. It is 5·06 in. in diam., and in the exergue is a demilune hole in which the finger could be inserted. Cf. p. 181 *supra*; *A.S.R.* (1928), Pl. xx, 12 and p. 59, no. 7. (Pl. 146, no. 106.)

CLASS XVI. *Shell-shaped ladles* (nos. 107, 108)

These ladles are in the shape of a shell, with the neck and head of an eagle forming a loop handle. They are of grey or yellow steatite and have been found only in the top stratum in Sirkap.

107. Sk. '26–2,214/8; Block G; sq. 109·52'; stratum I. Shell-shaped ladle of yellow steatite, with eagle-headed loop handle. Length 3·37 in. Cf. p. 169 *supra*. (Pl. 141, *z*.)

108. Sk. '29–970; spoil earth. Similar to preceding, but of grey steatite. Length 3·37 in. Broken. (Pl. 141, *aa*.)

CLASS XVII. *Lamps* (nos. 109–17)

Lamps do not appear to have been made of stone until the Śaka-Parthian period, when schist and other soft stones came into use for the manufacture of many household utensils. No specimens of stone lamps have been found in the Bhiṛ Mound or in the earlier cities of Sirkap; and none of those from the Dharmarājikā Stūpa can be assigned to an earlier date than the second century A.D.

The commonest shape is a leaf- or heart-shaped vessel, sometimes provided with a handle projecting from the back, sometimes with pierced lugs for suspension. A few specimens are bowl-shaped or rectangular, with spouts for the wicks. The former, and perhaps the latter also, were copied from Hellenistic prototypes.

Type *a*. *Leaf- or heart-shaped lamps, with open reservoirs.*

109. Sk. '24–882; Block C; sq. 45·46'; stratum IV. Leaf-shaped lamp of grey schist, with three lug-ears, pierced for suspension. Length 4·12 in. (Pl. 141, *bb*.)

110. Sk. '13–1,094; Block E; sq. 74·53'; stratum I. Similar to preceding, of micaceous schist, with lotus-leaf design on outside. Length 4·62 in. Cf. p. 162, no. 8 *supra*. (Pl. 141, *cc*.)

111. Dh. '12–112; D8; 8 ft. below surface. Similar (length 4·62 in.), with Kharoshṭhī inscription on outside: *Taksha(ś)ilaami dhamaraï(e Dhamadasabhikskun)o (esha)saputrasa danamukhe(o)* = 'In the Dharmarājikā compound of Takshaśilā this is the gift of the friar Dharmadāsa (?).' Cf. pp. 249, 252 *supra*; *A.S.R.* (1912), Pl. xiv, *d*; and for the inscription, *C.I.I.* II, pp. 89–90. According to Prof. Konow, the characters are later than the silver-scroll inscription of the year 136 = A.D. 78–9 (see above, ch. 10, p. 256), but earlier than Kanishka's reign. The lamp may, therefore, be assigned to about the beginning of the second century A.D. (Pl. 146, no. 111.)

112. Mm. '15–274; central court of monastery. Leaf-shaped lamp of phyllite, with three solid lugs at sides and back, and two small projections inside, near the lip. Length 5 in. The outside is carved in low relief with a lotus-leaf pattern, and the rim with a rough bead moulding. This lamp comes from the Mohṛā Morādu monastery and is almost certainly of the fifth century A.D. (Pl. 141, *dd*.)

113, *a*. Mm. '15–286; cell 15; 10 ft. below surface. Heart-shaped lamp of micaceous schist, with projecting handle at back and beaded border on rim. Length 6·12 in. This also is from the Mohṛā Morādu monastery, and of the same date as the preceding. (Pl. 142, *a*.)

b–e. Other lamps of the same leaf- or heart-shaped type are Sk. '14–132, stratum II, of schist; Dh. '16–666, of hornblende-schist; Dh. '13–1,848, of phyllite; and Dh. '12–1,087, of schist.

Type *b*. *In the form of a squat vase, with animal-headed spout.* Copied from Hellenistic prototypes.

114. Ml. '25–133; Trench B; room 4; 5 ft. 2 in. below surface. Bowl-shaped lamp of green steatite, with spout and three lugs pierced for suspension (length 3·75 in.). Between the lugs are acanthus leaves, and on the spout an elephant's head in low relief; the lower part of the body is turned on the lathe and relieved with incised horizontal bands. Pieces of iron wire still remain in the lug-holes. This lamp, which comes from the Mahal site in Sirkap, is referable to the middle or later part of the first century A.D. (Pls. 142, *b*; 146, no. 114.)

115. Jl. '12–35; Mound D. Similar in shape to the foregoing but of pink Vindhyan sandstone and much cruder workmanship. Length 4·12 in. The spout, which takes the form of an animal's head, is longer, and the body adorned with lotus instead of acanthus leaves. Round the mouth at the top is a zigzag pattern. Early medieval period. (Pl. 142, *c*.)

Type *c*. *Rectangular in shape, with human-headed spout.*

116. Dh. '17–160; T2; 2 ft. below surface. Rectangular lamp of micaceous schist, with human-headed spout; length 2·37 in.; three pierced lugs on side for suspension. Beneath the rim, dog-tooth moulding. Probably fifth century A.D. (Pls. 142, *d*; 146, no. 116.)

117. Dh. '12–764; G3; 3 ft. 6 in. below surface. Similar to foregoing but of phyllite, with lotus pattern round body. Length 4·43 in. (Pl. 142, *e*.)

117, *a*, *b*. Another lamp of this type, also of phyllite, is figured in Pl. 142, *h* (Dh. '12–2,230) and a small stucco lamp of the same shape in Pl. 142, *i* (Dh. '16–1,072).

CLASS XVIII. *Burnishers and polishers* (nos. 118–20)

These may have served various purposes, but it is probable that they were chiefly used for the polishing of small gold and silver articles.[1] The larger kind are from 2·5 to 4 in. in length, spindle-shaped, and generally with one end more pointed than the other. They are made of sardoine, banded agate, chalcedony or chert. But there is another and smaller type of burnisher intended for exceptionally fine work, which consists of a tiny point of agate set in a copper handle. This latter type has been found only in Sirkap; the larger type occurs in the Bhiṛ Mound as well as in Sirkap.

Type *a*:

118. Bm. '15–323; stratum II. Burnisher of impure chalcedony, blotched white and grey. Length 4 in. (Pls. 142, *g*; 146, no. 118.)

119, *a*. Sk. '29–190; Block A'; sq. 25·88'; stratum III. Burnisher of brown sardoine. Length 2·75 in. Cf. p. 195 *supra*. (Pl. 146, no. 119, *a*.)

119, *b*, *c*. Other burnishers of this type are figured in Pls 142, *f*; 146, no. 119, *b* (Sk. '26–2,195; stratum II) and Pl. 146, no. 119, *c* (Sk. '27–1,533; stratum II). The former is of chalcedony; the latter of black chert.

[1] Cf. Petrie, *Objects of Daily Use*, Pl. LVI, 33–5.

Type *b*:

120. Sk. '29–1,173; Block 1'; sq. 11·100'; stratum III. Point of banded agate set in copper handle and used as metal burnisher for very fine work. Length 1 in. Cf. p. 196 *supra*. (Pl. 142, *o*.)

CLASS XIX. *Touchstones* (no. 121)

For the testing of gold, natural pebbles of black basanite or Lydian stone, highly polished, were sometimes used (e.g. Bm. '24–357; stratum III; and Sk. '12–257; stratum II) but most of the touchstones found at Taxila are made of hard siliceous slate cut into long strips, which still retain upon them the marks of the gold. Touchstones of this type, however, have been found only in the later strata in Sirkap.

121. Sk. '14–1,953; Block E'; sq. 73·75'; stratum III. Touchstone of hard siliceous slate, with gold streaks still visible on its surface. Size 8·25 × 1·12 × 0·75 in. Cf. p. 184 *supra*; *A.S.R.* (1914), p. 20. (Pl. 146, no. 121.)

Other specimens of the same shape and material are: Sk. '26–4,148; Sk. '19–933/46; Sk. '12–667. They vary in length from 5·55 to 10·37 in.

CLASS XX. *Palettes* (nos. 122, 123)

Only two specimens of palettes have been found, one made of slate, from the top stratum in Sirkap, the other of claystone from Mound C at Jaṇḍiāl.

122. Sk. '19–257; Block E'; sq. 79·98'; stratum I. A circular palette of slate. Diam. 5·5 in.

123. Jl. '12–243; Mound C. Palette of claystone, three-sided, with circular depression on one side for a single pigment.

CLASS XXI. *Spindle-whorls* (no. 124)

124. Spindle-whorls of stone are also rare and are found only in Sirkap. They are generally made of micaceous schist or soapstone (e.g. Sk. '12–81 and '24–1,196) and are of the same shapes as the terra-cotta ones; but there is one noteworthy specimen of rock-crystal, no. 124 (Sk. '28–1,681), which takes the form of a rather flat barrel-disk bead, with a diam. of 1·62 in. It comes from the Śaka-Parthian city in Sirkap; Block F'; sq. 84·89'; stratum II. Cf. p. 182 *supra*. (Pl. 142, *k*.)

CLASS XXII. *Potter's* konoras *and* thatwās (nos. 125–8)

The *konora* and *thatwā* were used by the potter to thin out the clay walls of his vessels. The *konora* is pressed with the left hand against the wall inside the vessel, while with the *thatwā* in his right hand the potter gently taps the wall on the outside. Both implements are still in use throughout India, the *konora* being frequently made of earthenware and the *thatwā* of wood.

Konoras.

125. Sk. '16; Trench A707; stratum II. Potter's *konora* of white marble. Length 3·12 in. (Pl. 142, *q*.)

126. Sk. '15–756; Block B; sq. 29·53'; stratum II. Similar to foregoing, of grey quartzite. Height 4 in. Cf. p. 148 *supra*.

Thatwās. Three of these implements were found at one spot in Sirkap, viz.:

127, *a*. Sk. '24–1,301; Block C; sq. 47·46'. Of hornblende-gneiss (length 6·37 in.) with cylindrical handle and flat body. Two others are of gneiss but the handles are unfinished (length 8·25 in.). Śaka-Parthian period. Cf. p. 210 *supra*. (Pl. 146, no. 127, *a*.)

128. Another specimen of hornblende-gneiss (length 7·5 in.) came from Piṇḍorā in Sirsukh and is probably of the fourth or fifth century A.D. Cf. p. 220 *supra*. (Ss. '15–81; 2 ft. 3 in. below surface.) (Pl. 146, no. 128.)

CLASS XXIII. *Amulets and other sacred objects* (nos. 129–37)

A. Ring-stones. Four specimens of these singularly interesting stones have been found at Taxila—three in the Bhiṛ Mound and one in the second stratum of Sirkap, but the style and workmanship of the latter leave no room for doubt that it belongs to the same (Maurya) age as the others. The peculiar sanctity with which ring-stones are invested in India is well known and can be traced back to an immemorial age. Large numbers of them, dating from the fourth or third millennium B.C. have been unearthed at Mohenjo-daro and Harappā—some no bigger than a finger-ring, some so large that it takes half a dozen men to lift them; while among famous examples of to-day may be mentioned the Śrīgundi stone at Malabar Point near Bombay, which is believed to purify those who crawl through it of disease and sickness, and the equally potent one at Śatrunjaya, the hole in which is known as *muktdwāra* = 'door of absolution'—the door which gives happiness to anyone who can creep through it. The idea underlying all these ring-stones is the same: they are regarded as *yonis* or female symbols of generation[1]—the idea being that those who pass through them are, as it were, born again, while in the case of the smaller stones of the same class the mere passing of the hand or finger through them is an act of special virtue. That the same idea attached to the specimens found at Taxila (probably ex-voto offerings) is evident from the nude figures of a 'goddess of Fertility' which are engraved with consummate skill inside the central hole, thus indicating in a manner that cannot be mistaken the connexion between them and the female principle.[2] It is not unlikely that the 'Fertility goddess' here represented may have been identified with the 'Earth goddess' Pṛithivī. The earth itself was conceived of as wheel-shaped in the *Rigveda*,[3] and it is said to be 'circular' in the *Satapatha Brāhmaṇa*. A disk of terra-cotta bearing an image in relief of a 'Fertility goddess' was unearthed by me at Bhiṭā in 1911–12, and is published in my *Report* for that year.[4] It belongs to the Kushān or Early Gupta period and depicts the goddess with legs wide apart and with a lotus (emblem of birth) issuing from her neck in place of her head. A similar plaque was also found at Kosam and is now in the Indian Museum.[5] With these may be compared a sealing from

[1] Cf. Crooke, *Religion and Folklore of Northern India*, p. 322.

[2] Cf. my remarks in *M.I.C.* vol. I, pp. 62 and 63. The same 'goddess of Fertility' is depicted on the gold leaf from the burial mound at Lauriyā-Nandangarh. *C.H.I.* vol. I, Pl. XI, fig. 21.

[3] *Rv.* X, 89–4. Macdonell and Keith, *Vedic Index*, I, p. 362.

[4] *A.S.R.* (1911–12), p. 75, no. 40 and Pl. XXIII, 40.

[5] *Ind. Mus. Cat.* II, p. 286, no. KM. 36.

Harappā (no. 649) exhibiting the goddess with her legs wide apart, as on the plaques referred to, but portrayed upside down with a plant issuing from her womb instead of from her neck. The cult of the *yoni*, as of the *liṅga*, has long been recognised as pre-Āryan in origin, and examples of it might naturally be expected to occur among the antiquities of Harappā and Mohenjo-daro, which there are the strongest reasons for regarding as pre-Āryan. Whether the pre-Āryan 'goddess of Fertility' afterwards came to be identified with the Vedic Pṛithivī and whether it is the latter or the former who is represented on the Taxila ring-stones are questions on which further light is needed.

129. Bm. '21–828; sq. 45·71'; stratum II. Circular ring-stone of purplish brown alabaster, carved on upper face with three concentric bands of cable-moulding, divided one from the other by band of 'cross-and-reel' pattern. Diam. 2·62 in. Round the central hole are three standing figures of a nude goddess, alternating with a foliate design, which we may presume to represent the Indian 'Tree of Life and Fortune' (*kalpa-vṛiksha* or *kalpa-druma*), so familiar on the carved balustrades and gateways of the Buddhists at Bharhut and Sāñchī. For jewel-like workmanship and exquisite finish this and the following ring-stones are as fine as any specimens of stone-carving in ancient India. Cf. *A.S.R.* (1920), Pl. XVII, 30 and *M.I.C.* vol. I, p. 62. (Pl. 147, *b*.)

130. Bm. '21–829; sq. 46·71'; stratum II. Fragment of ring-stone similar to preceding, but of quartzite sandstone. Original diam. 4 in. In this example, the inner cross-and-reel band is replaced by a line of elephants, and to the side of the central hole is a conventional mountain with a hand on one side and a hand holding a bow on the other. (Pl. 147, *c*.)

131. Bm. '24–609; sq. 13·57'; stratum III. Similar to no. 129, but a fragment only, of ferruginous claystone. Length 2·25 in. (Pl. 147, *d*.)

132. Sk. '27–1,241; Main Street; sq. 229·73'; stratum II. Similar to no. 129, but of slate-stone. Diam. 3·25 in. Round the central hole are four instead of three figures of the 'Nude goddess', alternating with the 'Tree of Life and Fortune'. This specimen, found in stratum II of Sirkap appears to be a survival from the Maurya period. Cf. *M.I.C.* vol. III, Pl. CLIX, nos. 9, 10. (Pl. 147, *g*.)

B. Āyāgapaṭa tablet.

133. Only two *āyāgapaṭa* tablets have been found at Taxila—one of burnt clay (see 'Terra-cottas', ch. 24, no. 56) and the other of stone. The latter (no. 133) is an insignificant specimen of indurated claystone, 4·5 × 3·5 in., with a circular depression in the middle of the upper face and representations of shells (*śaṅkha*), shield-symbols, swastika, lotuses and fish (*matsya*) round the edges. It was found at Tofkiāñ in Sirsukh (Ss. '15–65), 2 ft. 6 in. below surface, and dates probably from the fourth or fifth century A.D. Cf. *A.S.R.* (1915), p. 22, no. 19 and Pl. XVI, *g*. (Pl. 146, no. 133.)

C. Amulets.[1]

134. Bm. '19–2,078; spoil earth. This little amulet (broken) in the form of a *triratna* comes from spoil earth on the Bhiṛ Mound and is referable to the Maurya period. It is 1 in. in length, made of ferruginous claystone and engraved with a spiraliform pattern all over its front surface, the back being plain and flat. Like most Mauryan work, the carving is strikingly neat and precise. (Pl. 142, *m*.)

135. Sk. '29–3,197, is a claw or tooth amulet of white marble, 2·37 in. long, with a pair of

[1] For a crystal lion, symbolic of the Buddha, which no doubt possessed amuletic properties, see vol. I, p. 245 and Pl. 49, *b*. It was found in stūpa N 7 at the Dharmarājikā.

cross-holes at the thicker end. It was found in Sirkap (Block A; sq. 19·88′; stratum V) and is referable to the second century B.C. Tiger-claws and teeth have long had a talismanic value in the eyes of Indians, and there is a beautiful example of one from the Bhiṛ Mound made of lead and half-covered with filigree gold. See 'Jewellery', ch. 30, no. 80. (Pl. 142, *l*.)

136. Sk. '16–149; Block A; sq. 20·59′; stratum II. Hexagonal piece of plain rock-crystal quartz (2·12 in. in length), which was evidently regarded as possessing amuletic value. It is bound round with a copper band and doubtless intended to be worn round the neck. Cf. p. 145 *supra*. (Pls. 142, *n*; 147, *f*.)

137. Sk. '29–405; Block C′; sq. 44·87′; stratum III. Similar to the foregoing, but of black basanite instead of rock-crystal (length 1·37 in.). Cf. p. 193 *supra*.

CLASS XXIV. *Stones for inlay, incrustation, etc.* (nos. 138, *a–f*, 139)

Most of the stones comprised in this class were found in the store-jar of Parthian date described on pp. 188–9 (Deposit E), the contents of which evidently formed part of a jeweller's stock-in-trade. Some of the stones were used for ornamental inlay work in wood, ivory, etc.; others for the eyes or *ūrṇās* of images.

No. 138, *a–f*. To the former class belong the thin disks of porcelain-agate referred to on pp. 478–9 above. As there explained, these disks vary in diameter from 2 to 3 in., and in thickness from 0·1 to 0·2 in., and are polished only on the upper porcelain-like surface, not on the under-surface, which resembles opaline chalcedony. They come from the top strata of the Bhiṛ Mound and from Sirkap, and are referable to the third and second centuries B.C.[1] Cf. p. 188 *supra*.

In view of the unusual character of this porcelain-agate, hitherto unknown to geology, it is desirable to give here the results of the examination made by Prof. H. B. Baker at the Royal College of Science, South Kensington. An air-dried sample yielded the following analysis:

	%
Silica	98·40
Ferric oxide and alumina	0·99
Lime	0·12
Magnesia	0·05

This corresponds very closely to an analysis of natural quartz, and the microscopic examination made by the Department of Geology points to the same conclusion, though no specimen of quartz has yet been found in a natural state which has the same peculiar arrangement of crystals. Prof. Baker endeavoured to reproduce the material by heating quartz for three months in an electric furnace to about the highest temperature of a furnace which would have been available in early times. This, he says, gave an opalescent material, which, however, was not identical microscopically with the sample of porcelain-agate examined.

The quartz of these disks could not have been fused, since the substance has a specific gravity of 2·64, identical with that of natural quartz, compared with 2·38, the specific gravity of melted quartz. On fusion in the oxyhydrogen flame a fragment first splits like ordinary quartz, and then fuses.

[1] Their reference numbers are: Bm. '19–117 (sq. 12·28′; stratum I); Bm. '21–966 (sq. 34·118′; stratum I); Bm. '21–1,426 (sq. 27·64′; stratum II); Bm. '20–1,403 (sq. 18·26′; stratum II); Sk. '30–22 (sq. 19·87′; stratum VI) and Sk. '19–933 (sq. 59·114′; stratum II; Block D′; deposit E).

Prof. Baker's conclusion, as already indicated, was that the porcelain-agate was a natural substance produced, possibly in a volcanic region, by the long-continued heating of ordinary quartz. Whence it came, however, is not known. Cf. *A.S.R.* (1920–21), pp. 45–6.

139. Other stones that are also used, but at a later date, for the same kind of disks or roundels for inlay and incrusted work, are veined agate, rock-crystal and jade. Most of the specimens of these that we possess come from the jeweller's store-jar found in Deposit E of Block D′ (Sk. '19–933, stratum II) and belong to the Parthian period.[1]

Some specimens of the agate pieces are illustrated in Pl. 147, *h, j–m, o, p*. All are plano-convex, the round disks being from 1·37 to 1·62 in. in diameter, the amygdaloid piece 2·62 in. in length. Dating as they do from the first century A.D., these specimens of agate are interesting in connexion with Pliny's description of the *myrrhina vasa*, since they illustrate precisely what he means when he says that some of them contain crystals and depressed spots that look like warts.[2] Of the rock-crystal pieces, one is round (diam. 1·62 in.) and two oval (length 0·93 and 1·37 in. respectively). Since rock-crystal was transparent and colourless, it is probable that silver or gold foil was put at the back of the crystal, just as silver foil was put at the back of carbuncles to enhance their brilliancy. Of jade, only two pieces have been found, both in the jeweller's store-jar. One is a flat lenticular piece with a hole in its middle (diam. 1·75 in.), the other a broken disk (length 1·87 in.).

A much finer kind of inlay is represented by a number of small bits of turquoise cut into various shapes—hearts, commas, crescents, circles, etc. These turquoise pieces also come from the same jeweller's hoard, and were no doubt designed for *cloisonné* jewellery. Cf. for examples, 'Jewellery', ch. 30, nos. 56–8, 137–40, 167–8.

CLASS XXV. *Eyes and* ūrṇās *of images* (nos. 140, *a–c*)

No. 140, *a* is the eye of an image (diam. 1 in.) made of lapis-lazuli inlaid with a circle of shell. It is of the Parthian period and from the same jeweller's hoard as the preceding. Cf. *A.S.R.* (1919), Pl. VIII, 8. (Pls. 142, *p*; 203, *i*.)

Nos. 140, *b* and *c* are spherical *ūrṇās* of rock-crystal, of which many other examples have been found; the former has a diameter of 1 in., the latter of 0·68 in. Both come from the Dharmarājikā Stūpa, and are probably of the fourth or fifth century A.D. For stone eyes of Greek and Roman images, cf. Dar. et Sag. IV, 1492, fig. 6614. Cf. p. 188, no. 16 *supra*. (Pl. 147, *e, i*.)

CLASS XXVI. *Moulds* (nos. 141–52). Cf. 'Terra-cottas', ch. 24, Class XXII; 'Copper and Bronze', ch. 28, Class V

Small moulds for the casting of metal ornaments were in use at Taxila from an early age—at least from the fifth century B.C., but only one example of them (no. 141) has been found in the Bhiṛ Mound.

This is a mould for two pendent beads, cut out of a fine bloched grey slate. The rest come from the Sirkap site, and are made of various stones—claystone, limestone, slate, steatite, grey schist and micaceous-schist, the two earliest, which are referable to the Bactrian-Greek period, being of claystone and steatite.

Ten of these Sirkap moulds are for pendants, finger-rings and other small personal ornaments, while two are for the small metal pieces—dots, commas, crescents, lozenges, etc., required in inlay work. The former are found in all the

[1] Cf. also no. 100 *supra*.

[2] Pliny, XXXVII, 7, 8; Schoff, *Periplus*, p. 194.

Sirkap strata from the time of the Bactrian-Greeks onwards; the latter only during the Parthian period, when inlay-work first became fashionable.

141. Bm. '30–1,048; sq. 28·65'; stratum IV. Half of a slate mould engraved with two ball-and-crescent pendants for necklace. Size, 1·43 × 1 × 0·37 in. The slate is a fine blotched grey variety. (Pls. 142, *w*; 147, q.)

.142. Sk. '29–3,153; Block A'; sq. 15·93'; stratum VI. Part of a claystone mould for a pair of finger-rings; size 2·62 × 1·75 × 0·5 in. One of the rings is adorned with six plain flat bezels; the other with a single bezel and beaded edge. Presumably there were two other pieces belonging to this mould, one for the front with round bosses for the interior of the rings, the other closing up the back. (Pl. 142, *y*.)

143. Sk. '28–270; Block A'; sq. 15·92'; stratum V. Mould of grey-green steatite, engraved with small beaded medallion. Length 1·37 in. The mould is pierced with two holes for adjustment to the other section. (Pl. 142, *x*.)

144. Sk. '29–891; Block A'; sq. 27·88'; stratum III. Similar, of purple-brown sandstone, with crescent, star, 'shield' and other designs engraved on one side. Size 3·75 × 3·25 × 0·87 in. Cf. p. 195 *supra*. (Pl. 142, *r*.)

145. Sk. '26–2,543; Block G; sq. 106·50'; stratum III. Similar, of micaceous schist, with lotus and star ornaments. Size 2·5 × 2 in. Cf. p. 169 *supra*; *A.S.R.* (1926), Pl. XXVIII–13, and p. 118, no. 13. (Pls. 142, *u*; 203, *c*.)

146. Sk. '13–826; Block F; sq. 91·66'; stratum III. Similar, of claystone, for two finger-rings. As in no. 142, the mould appears to have been in three pieces. Size 2·25 × 1·87 in. Cf. p. 166 *supra*. (Pl. 142, *v*.)

147, *a*, *b*. Sk. '19–615, and 616; Block D'; sq. 58·115'; stratum II. Two pieces of limestone mould for a pair of ear-pendants. Size 1·5 × 1·12 in. On the back of *a* is a Kharoshṭhī inscription: *Ga* : *Gayalasa* = 'Of Gayala'. On the back of *b* is another Kharoshṭhī inscription, but it is not legible. Cf. *C.I.I.* vol. II, part I, p. 102, no. 13; p. 190 *supra*. (Pls. 142, *bb*, *cc*; 203, *d*, *e*.)

148. Sk. '19–933/48; Block D'; Deposit E. From jeweller's store-jar. Half of mould of grey schist engraved with figure of *Siṁha Vahini* (?) riding side-saddle on her vehicle the lion, and holding aloft a sword in her right hand. Length 1·37 in. Cf. *A.S.R.* (1919), Pl. X, 28. For other objects from the same hoard, see vol. I, pp. 188–9, and no. 100 *supra* and footnote. (Pls. 142, *t*; 147, *n*.)

149. Sk. '17–404. Spoil earth. Mould of slate for small medallion, with *nandipada* in centre encircled by beaded border. Size 1·37 × 0·75 in. (Pl. 142, *s*.)

150. Sk. '20–911. Spoil earth. Half of a slate mould for a pair of small ring-pendants. 2·75 × 1·5 in. At the other end of the mould, which is broken, is a remnant of the engraving for two ball beads or pendants. (Pl. 142, *aa*.)

151. Sk. '14–375; Block C'; sq. 51·78'; stratum II. Section of mould of micaceous schist, with heart, dot-and-comma, leaf and other patterns sunk on one side for the casting of metal dies. 4·25 × 1·37 × 0·62 in. Cf. p. 193 *supra*; *A.S.R.* (1914), Pl. XXVII–6, p. 16, no. 3; and for the use to which this and the following moulds were put, see 'Copper and Bronze', ch. 28, Class V, *infra*. (Pls. 142, *z*; 203, *f*.)

152. Sk. '17–65; Block A'; sq. 24·77'; stratum II. Similar to foregoing, of micaceous schist, with devices on all sides. Length 3·25 in. This appears to have been part of a vase rim converted into a matrix. Cf. p. 195 *supra*. (Pls. 142, *dd*; 203, *g*.)

Class XXVII. *Miscellaneous* (nos. 153–65)

153. This is a perfume-holder of agate from the Mahal site in Sirkap and is referable to the Parthian period. (Ml. '23–90; sq. 63·84'; 2 ft. 6 in. below surface.) Its length is 12·75 in., and the long handle is made up of fourteen pieces of agate strung together on a thin iron rod. The

beauty of the polished agate is very striking and well explains why the Romans set such store on the *myrrhina vasa* made of this stone. (Pl. 147, *s*.)

154. An oblong die of slate with the numbers 1 to 4 shown by small circlets on the four sides, no. 1 being opposite to no. 4 instead of no. 3, as is usual in the dice of this period. Length 2·75 in. Sk. '20–416; Block B'; sq. 31·86'; stratum II. Cf. 'Bone and Ivory', ch. 32, nos. 92–8, and 'Terra-cottas', ch. 24, nos. 122–5; also p. 194 *supra*. (Pl. 142, *kk*.)

155. Jl. '13–72; Mound C; 5 ft. below surface. Circular stand of green jasper from Jaṇḍiāl, turned on the lathe and highly polished, the workmanship being particularly fine. Diam. 3 in. Probably of the Parthian period, though the findspot would point to a later date. (Pl. 142, *ff*.)

156. Sk. '30–547; Block C'; sq. 47·94'; stratum VII. Handle of mirror(?) 2·75 in. in length. It is made of dark grey hornblende-schist, and provided at the smaller end with a socket-hole for tenon. Found at a depth of 19 ft. and, unless a stray, is referable to the Bactrian-Greek or Maurya period. (Pl. 142, *hh*.)

157. Side-piece of a knife-handle, made of black and white hornblende-gneiss, 1·87 in. long. In it are three rivet-holes. Maurya period. Bm. '20–112; sq. 39·25'; stratum II. (Pl. 142, *ii*.)

158, *a*, *b*. Two broken objects of marble, one white, the other grey—the purpose of which is unknown. Both come from the latest stratum in Sirkap and are similar in shape. No. 158, *a* (Sk. '28–1,461; spoil earth) is 3·12 in. long and furnished with three iron rivets on its underside. The other is 2·25 in. long and has no iron rivets. Sk. '26–1,120; Block J; sq. 146·54'; stratum I. Cf. pp. 171, 182 *supra*. (Pls. 142, *jj*; 203, *h*.)

159. Ear-plug of rock-crystal made of two pieces with socket-hole in each. The front part is hexagonal; the back round. Length 0·87 in. The shape is generally similar to a lead ear-plug from the Bulandi Bagh at Patna, of Maurya date. (Pl. 147, *r*.) Sk. '13–129; Block D; sq. 56·55'; stratum II. (Pl. 142, *j*.)

160. Ear-reel of rock-crystal. Diam. 1·12 in. Probably suspended from the ear. Pippala '21–189. Debris on north side of monastery.

161. Similar, of yellow jasper. Diam. 1 in. Highly polished. Sk. '27–1,403; Block D'; sq. 63·118'; stratum II. Cf. p. 190 *supra*. (Pl. 142, *gg*.)

162. Similar, of red jasper with haematite streaks. Diam. 1 in. Length 1·25 in. Sk. '29–1,365; Block 1'; sq. 14·99'; stratum IV.

163. Similar, of yellow riband jasper, polished. Diam. 0·65 in. Bm. '30–378; stratum II.

164. Similar, of banded agate, polished. Diam. 0·87 in. Length 0·62 in. Sk. '13–376; Block F; sq. 93·59'; stratum II. Cf. p. 166 *supra*.

165. Ink-grinder of rock-crystal, square in section, with four heads carved in relief at the four corners. Handle on top broken. Size 0·62 × 0·62 in. Dh. '14–903. B27. 4 ft. below surface. (Pl. 142, *ee*.)

CLASS XXVIII. *Weights* (Pl. 203, *j*)

The weights found at Taxila are more than usually valuable, as they are the first of their kind to be found in sufficient number for us to fix their values with virtual accuracy, as well as the ratios which they bear to one another. These weights are invariably made of a hard stone—granite, hornblende-gneiss, pyroxene, diorite or chert—and are spherical in shape, that being, so far as we know, the usual shape then in vogue in Hindustān and other parts of India. In this respect they differ from the weights in use in prehistoric times, which are usually cubical in form,[1]

[1] Cf. *M.I.C.* ch. XXIX, p. 589.

though, in the case of larger weights, sometimes conical. Why a spherical weight should have been preferred to a cubical or conical one, is not apparent, since it is neither a convenient shape when the weights are being piled together in the scales, nor, on the other hand, would it have stood in the way of dishonesty, if anyone had wished to grind down their weights. Possibly there was some reason with which we are not now acquainted.

Apart from their shape, there is another feature of these stone balls that requires particular notice, because it may have to be taken into account when calculating their original weight. Many of them have a small cylindrical hole drilled into their surface, which was probably made when the weights were being officially checked, and left hollow, if the weight had to be reduced, or filled with lead, if it had to be increased. Some of the balls still retain this lead packing in their cavities; in others the cavities are hollow. We must not, however, take it for granted that the cavity was always hollow, since in the course of the ages, the lead may obviously have decayed or fallen out. Nor, on the other hand, must we take it for granted that any given cavity was necessarily intended to be filled or partly filled. It may have been made, merely to reduce the weight, when the balls were being officially tested, this being the quickest means of achieving that end. In the same way modern iron weights often have circular cavities drilled out of their underside, which are either left hollow or filled with lead according as the weight has to be reduced or increased.

Altogether, some fifty-four spherical weights have been found at Taxila, but of these, two are evidently unfinished and eleven have their edges so rubbed or chipped that it is impossible to draw reliable conclusions from them. The remaining thirty-nine all come from Sirkap, twenty-five from the jeweller's hoard in Block D′ (Sk. 933/56);[1] seven from another group (Sk. 729); and three from another (Sk. 225). In discussing them I shall deal first with the series of twenty-five from the jeweller's hoard, since these not only comprise the largest number, but belonging as they did to a jeweller, by whom they would no doubt be used for the weighing of precious metals, they are likely to have been more than usually accurate.

It needs but a glance at the serial figures of these weights given below to perceive that the majority of them fall into a regular binary sequence of ratios. Thus, starting from the last and smallest unit no. 25, which is 51·5 gr. tr., the ratios of the last eighteen are, with one exception, as 1, 2, 4, 8, 16, 32 and 64. The exception is no. 13, which has a weight of 1,075 gr. tr. equivalent to twenty times the smallest unit. Now, eliminating the two weights 16 and 23, which are damaged, and taking the average of the remainder, we find that the unit works out at 52·3 gr. tr. or, allowing for wear and tear, say 53 gr. tr. This is the weight of the standard Indian punch-marked coin known as *kārshāpaṇa*, and also one of the commonest units in the prehistoric weights of the Indus valley. The series of weights, then, should be, 53, 106, 212, 424, 848 (1,060), 1,696, 3,392 gr. tr. It may be that the loss from wear and tear

[1] See vol. 1, pp. 188–9.

Spherical weights from jeweller's hoard in Sirkap (Cf. pp. 188–9.)

Those marked with an asterisk have a small cavity sunk in their surface.

Sk. 933/56		gr. troy	
1		6,393	—
*2		6,305	Chipped; part of lead filling in cavity
3	116	6,159	Add 5 gr. for small chip
*4		6,148	—
5		6,110	Add 40 gr. for chip
6		6,030	—
7		5,480	—
*8	64	3,362	—
*9		3,354	Some filling preserved
*10	32	1,686	Ditto
*11		1,671	—
12		1,669	—
13		1,075	—
*14	16	840	Some filling preserved
*15		808	—
*16		803	Damaged
17	8	430	—
*18		416	—
*19		409	—
20	4	210	—
*21		208	Some filling preserved
22		204	—
23		195	Damaged
24	2	109	—
25	1	51·5	—

was somewhat greater than the small allowance of 0·7 gr. tr. made for the smallest unit, but having regard to the heavier weights, it seems unlikely that it could have been much greater; had it been so, the wear and tear in their case would have been excessive. Comparing these calculated figures with the individual weights, we see that, out of the last eighteen items in the series, there are only two whose weight exceeds the figure calculated, viz. nos. 17 and 24, the former being 6 gr. in excess of 424 and the latter 3 gr. in excess of 106. This is a very slight error when we consider the great irregularities in the weights of coins belonging to one and the same issue, and the difficulty of determining exact weights with the kind of scales or other instruments which were then available. Moreover, it is to be noticed that these two are among the weights which have no cavities in them, and it is quite possible, therefore, that they had not passed the official test.

So far, then, the sequence of ratios is clear; but the remaining items of the list, viz. nos. 1–7, offer more difficulty. Taking no. 7 first, it is to be noted that this weight is a particularly well-preserved one, without chip or cavity, and that there is no allowance, therefore, to be made except for ordinary wear and tear, which with a heavy ball such as this may be put down at, say, 20 or 30 gr. The ratio, then, which this weight evidently represents is the 104th in the series, having a calculated weight of 5,512 gr. tr., as compared with the actual weight of 5,480 gr. tr. or 5,510,

if we allow 30 gr. for wear and tear. We shall see presently that we have some smaller weights with the ratio 13, and evidently this weight was intended to be a multiple of those, 13 × 8 equalling 104.

No. 6, with a weight of 6,030 gr. tr. is also a well-preserved weight, without cavity or chip, and the ratio that it represents is the 114th with a calculated weight of 6,042 gr. tr. Nos. 5 and 3 are both chipped, the loss in the former being some 40 gr. and in the latter about 5 gr. Seemingly, therefore, these and no. 4 are to be grouped together, the ratio to which they belong being the 116th, with a calculated weight of 6,148 gr. tr. There remain nos. 1 and 2, with weights, respectively, of 6,393 and 6,305 gr. tr. The second is chipped and has a cavity, which is only half-filled with lead. For this and the chipping an addition of 50 to 60 gr. may be made. This weight, therefore, may be taken to belong to the 120th ratio group with a calculated weight of 6,360 gr. tr. The other, though 33 gr. in excess, probably belongs to the same group.

The whole series, then, of these twenty-five balls from the jeweller's hoard presents the following ratios and weights:

(gr. tr.)	(gr. tr.)	(gr. tr.)
1 = 53	16 = 848	104 = 5,512
2 = 106	20 = 1,060	114 = 6,042
4 = 212	32 = 1,696	116 = 6,148
8 = 424	64 = 3,392	120 = 6,360

The other twelve weights from Sirkap, which are in a good state of preservation, fall into the same scale but give us three more ratios, viz. 11, 13 and 60. They are as follows:

Weight	Ratio	Calculated weight (gr. tr.)
26. Sk. 729, *a* = 3,100	60	3,180
27. Sk. 729, *b* = 3,092	60	3,180
28. Sk. 1,679 = 3,019	60 (?)	3,180
29. Sk. 225, *a* = 1,686	32	1,696
30. Sk. 225, *b* = 844	16	848
31. Sk. 729, *c* = 829	16	848
32. Sk. 729, *d* = 671·5	13	689
33. Sk. 729, *e* = 669	13	689
34. Sk. 729, *f* = 555	11 (?)	583
35. Sk. 376 = 419	8	424
36. Sk. 225, *c* = 417	8	424
37. Sk. 729, *g* = 205	4	212

Nos. 26 and 27 would correspond more closely with the ratio 59, but it seems more likely that the ratio is 60, particularly as we have the ratio 20 in the first series, and that the difference is due to wear and tear. The same remark applies also to no. 28. No. 34, with a weight of 555 gr., might be in a ratio of 10 or 11, but, whereas in the former case we should have to explain away a surplus of more than 25 gr. over the calculated weight, in the latter a shortage of 28 gr. can easily be accounted for by wear and tear.

The remaining ball weights from Taxila, which are too much rubbed or damaged

to be taken into the above calculations, are given below. Like the others, they are made of granite, hornblende-gneiss, pyroxene and diorite.

		(gr. tr.)			(gr. tr.)
38.	Sk. 190	52,381	45.	Sk. 906	6,486
39.	Sk. A 733	19,980	46.	Bm. 48	6,384
40.	Bm. 618	9,304	47.	Bm. 994	6,324
41.	Sk. 41	8,306	48.	Bm. 29	6,009
42.	Bm. 295	8,174	49.	Bm. 1,388	3,073
43.	Sk. A 731	7,978	50.	Bm. 607	2,927
44.	Bm. 1,472	7,896			

The above weights show a remarkably close correspondence not only with those of the punch-marked coins (*kārshāpaṇa*) of the early historic period, but also with the prehistoric weights of the third and fourth millennia B.C. found at Mohenjo-daro and Harappā. The latter follow a binary system, like those of Taxila, in the smaller weights and then decimal, the succession of weights being in the ratios 1, 2 ($\frac{1}{3} \times 8$), 4, 8, 16, 32, 64, 160, 200, 320, 640, 1,600. The commonest weight, of the ratio 16 in this series, has a mean calculated value of 211·5 gr. tr.,[1] which to all intents is identical with the corresponding weight at Taxila of something under 212 gr. Similarly, the fourth in the Indus series has an average weight of 52·875 gr., which is only one-eighth of a grain different from the mean calculated average of the corresponding weight at Taxila. It is quite evident, therefore, that these weights had come down from an immemorial antiquity in India—and it is natural to find them employed for the silver *kārshāpaṇa* coinage which was current in the third century B.C. throughout the Maurya Empire. The commonest and most widely diffused of these *kārshāpaṇas* averaged, under the Mauryas, between 51·5 and 52·5 gr., although good specimens exist as high as 54 and as low as 50 gr.[2] It was only in the North-West of India, which had come under Persian influence during the rule of the Achaemenids, that a somewhat heavier *kārshāpaṇa* was used, weighing some 56 gr. or more, the purpose of increasing it to this weight being to equate it with the Persian *sigloi*, two of which would go to three of these heavier *kārshāpaṇas*.

[1] Cf. Hemmy in ch. XXIX of *M.I.C.* p. 596.

[2] John Allan in *B.M. Cat. of Early Indian Coins*, pp. clxi *sq.* Cf. also Sir W. Elliot, 'Coins of Southern India' (*Int. Numis. Orient.*), p. 49.

Chapter 26. STUCCO SCULPTURES

History of stucco-work in North-West

Earliest examples at Taxila

THE ART of modelling in plaster appears to have been introduced into India from the West[1] by the Śakas or Parthians, most probably by the latter. No trace of moulded plaster-work has been found among the ruins on the Bhiṛ Mound or in the Greek strata of Sirkap. The earliest example of it may be the bold acanthus-leaf decoration on the small stūpa in Block E of the latter site (Pl. 27, *a* and p. 158), which, as already stated, dates from the beginning of the Christian era or from a decade or two earlier, though it is possible in this case that the decoration is substantially later than the body of the monument. Of figural work in stucco the oldest specimens I have found at Taxila or that are known to exist anywhere in India are the sculptures which adorned the two small stūpas in front of the apsidal temple in Block D of Sirkap.[2] The exceptional value that these sculptures possess for the history of early art in the Panjāb has already been stressed. Taken in conjunction with other antiquities of the same age from Taxila, they give us for the first time a correct idea of the character and quality of art in this part of India in the middle of the first century A.D., when the nascent art of Gandhāra was beginning to make its appearance at Taxila. Of true Indian art, such as was then prevalent in Hindustān and Central India, there was next to none. Under the Parthian domination the only art that counted was the Hellenistic, and in nine cases out of ten the efforts of the local sculptors were directed to producing something in imitation of that art.

Stucco figures of Parthian period from Sirkap and their classification

Of the stucco figures from the apsidal temple that we are here considering a few are so characteristically Hellenistic that they might equally well have been turned out at Seleucia or at Antioch as at Taxila; and it is reasonable, therefore, to infer that they are the work of some foreign artist, who, if not a Greek himself, had at least been trained in a Hellenistic School. Most of the figures, however, are evidently the handiwork of local craftsmen who were doing their best to copy Hellenistic models but without properly grasping the essentials of Hellenistic art, and whose efforts, therefore, are rarely very successful and not infrequently border on the grotesque.

Composition of stucco in Parthian period

The stucco of which these early sculptures are made is composed of lime mixed freely with small, broken stone (*bajrī*) and other foreign matter. It is much coarser than the stucco found on the later monuments at Jauliāñ, Mohṛā Morādu, etc., nor is there any trace of the fine finishing coat or of the colours which in the later stuccos were used to pick out certain details.

Stucco reliefs of Kushān period at Dharmarājikā

The next landmark in the history of stucco-work at Taxila is furnished by the remnants of a few reliefs on the pylons and west façade of the stūpa-plinth R3 at

[1] For Graeco-Roman stucco-work, see Dar. et Sag. *s.v.* 'Tectorium' and figs. 3233, 6760.

[2] Cf. vol. I, pp. 154–5.

the Dharmarājikā. As already stated, the pylons were added to the plinth in the early part of the second century A.D., and there can be little doubt that the stucco ornamentation was contemporary with them. The figures are in the same style as the stone Gandhāra reliefs which were preserved in chapel L close by, and it is not unlikely that they were executed by one or other of the artists responsible for those sculptures, since it is quite clear that the sculptor who designed and executed them must have come from Gandhāra itself. (Cf. pp. 253–4 *supra*.)

Then, two or three generations later, we have the remains of some stucco images enshrined in the plinth niches of stūpas K 1 and N 4, likewise at the Dharmarājikā site. The best preserved of these is the figure of the Buddha on the north face of K 1 (p. 262 *supra*, and Pl. 57, *b*), but even this is headless, and all that can be said of the draped body is that it is gracefully modelled and quite in keeping with the date assigned to it (late second or early third century A.D.).

With these few exceptions, however, there are no surviving specimens of stucco figures at Taxila between the first and fourth centuries A.D., nor have any examples of sculptures in this material been found at other contemporary sites in the North-West. During the Kushān period a vast amount of sculpture was, as we know, turned out in this part of India, but it seems to have been mainly executed in schist or phyllite from the region of Swāt or in a white calcareous stone from the neighbourhood of Jelālabād in Southern Afghānistān, or else in clay, which, save in very rare cases (where fire has intervened to preserve it), has inevitably perished in the course of the ages. Before the discoveries at Taxila had thrown new light on the subject, it used to be thought that the remains of numerous stucco reliefs found at Sahrī-Bahlōl, Takht-i-Bāhī and other sites belonged to the Kushān period and were contemporary with the familiar stone reliefs of the Gandhāra School. It is now clear that this was a mistake. All the reliefs in question are in precisely the same style as the fourth- to fifth-century work at Taxila, and there can be no question that they are of the same age.[1] The same is true also of the numerous stucco figures unearthed by the French Mission at Haḍḍa and other sites in Afghānistān.[2]

'Indo-Afghān' School of fourth and fifth centuries A.D.

Increasing popularity of stucco and its causes

At this time stucco, as a material for sculpture, was assuming an importance which it had not known before and has not known since. In the new School which began to take shape in the fourth century—a School which we may conveniently designate the 'Indo-Afghān'—stucco was coming to be used not only in place of stone but largely in place of clay as well. Over stone it naturally had a signal advantage in that it needed no chisel for its carving, could be easily manipulated

[1] Cf. *The Stūpas and Monasteries at Jauliāñ* (*A.S.I. Mem.* no. 7), p. 33, where M. Foucher accepts the late Dr D. B. Spooner's interpretation and dating of certain stucco reliefs. The head from Takht-i-Bāhī said by the latter to have come from a Temptation Scene was in all likelihood that of a grotesque atlant, and the two mutilated figures at the side of a Buddha from Sahrī-Bahlōl may well have represented the donors. At the best their evidence is very questionable. Cf. *A.S.R.* (1907–8), pp. 136–7 and *ibid.* (1909–10), p. 48.

[2] E.g. *L'Œuvre de la Délégation archéologique française en Afghanistan* (Tokyo: Maison franco-japonaise, 1933), sér. A, tome 1, Pls. 1–4, 6–8, 10–25, 31 and 32.

by hand, and, if desired, even cast in a mould. On the other hand, though less plastic than clay, it was far more durable, especially in positions exposed to the weather. This convenience in handling and this durability of stucco go far to explain its growing popularity among the Indo-Afghān sculptors, but there were other reasons also for this popularity which must not be lost sight of. One was that since the eclipse of the Gandhāra School under the Kushāns, the chief centres of art in the North-West had shifted from the spots where stone could be readily procured for sculpture. At Taxila itself, which was certainly one of the most important of these centres, the only kinds of stone available were an excessively hard limestone, which was too refractory to be carved into statues, and a soft porous kañjūr, which was too soft and coarse to be cut into subtle and delicate forms. In Southern Afghānistān sculptors seem to have been little better off. The fine hornblende- and mica-schist stones which had been used by the sculptors of Gandhāra, were not to be found there, and in default of these they had to fall back on a local variety of white porous limestone, which was by no means so well suited to their purpose. With the rise, however, of the Indo-Afghān School they proceeded to follow the same course as their brethren at Taxila and to make use almost exclusively of stucco, clay and terra-cotta.

Reduplication of sacred images

Another reason for the freer use of stucco at this period was the facility it offered for the reduplication of Buddha or Bodhisattva images, to which increasing importance had come to be attached. Under the early Kushāns, the decoration of stūpas and chapels had consisted largely of scenes from the previous births or from the last life of the Buddha, but these scenes, so familiar in Gandhāra art, had fallen out of fashion, and by the fifth century A.D. the creation of an image of the Buddha or of one of the Bodhisattvas had come to be regarded as a work of merit in itself, and the more images of this kind that a man could get fashioned, the more likely was he to attain the goal of his salvation. Hence arose the practice of erecting an ever-increasing number of stūpas and of decorating them from head to foot with countless repetitions of these sacred figures. And in the fashioning of them stucco was an invaluable agent, since with its aid it became possible to turn out figure after figure (many, it might be, from one and the same mould) with the greatest possible expedition and at the smallest cost.

Age and varying merit of stucco reliefs of Indo-Afghān School

Among the thousands of stucco reliefs recovered amid the ruins of the later Buddhist monuments at Taxila, it goes without saying that all are not of the same age. The destruction of most of the monuments to which they belonged took place, as we have seen, in the latter part of the fifth century A.D., and at the time when it happened some had no doubt been standing for several decades, some had survived from Kushān times or even earlier, and others had probably been erected in quite recent years. It is tempting, therefore, to try and arrange these Indo-Afghān sculptures in some sort of chronological sequence, and since we have no precise evidence of their respective dates, to endeavour to do so on the basis of their style alone. It is questionable, however, if such an attempt can ever succeed. Without doubt, there are many striking differences in the style of these reliefs

Some are as beautiful as any examples of the sculptor's art found in India; others are crude and spiritless efforts, which have little claim to be called art at all. But the differences between them are due, less to the progress or decay of art, than to the varying skill or idiosyncrasies of their authors. To take but one example, namely, the reliefs on the south side of the Mohṛā Morādu Stūpa, we know that all these reliefs belong to the same period. Of this there can be no reasonable doubt. But if we had not known this, and if the figures of which they are composed had not been found *in situ*, we might well have concluded that the coarse and nerveless reliefs in the outer bays belonged to a more decadent phase in the history of the Indo-Afghān School than the magnificent group in the fourth bay. Until, then, further and more precise evidence comes to light, it is clear that we must beware of using the style of these sculptures as a criterion of their age, and be content, meanwhile, to treat them all as belonging to one indivisible group,[1] notwithstanding that they vary greatly in style and merit.

and their technique

As to the technique of these sculptures, the bodies, legs and arms of the larger figures were usually composed of soft kañjūr stone and mud, covered with a thick coat of the same coarse and friable plaster with which the walls were faced. On the other hand, the heads were made of a finer and more lasting kind of plaster, and then mortised into the neck, sometimes with a piece of wood to strengthen the joint, sometimes without. Thanks partly to their shape and partly to the stronger material of which they were made, the heads were naturally able to resist the pressure of the fallen debris or the percolation of rain-water better than the bodies; and this explains why, on many sites on the North-West Frontier, the heads unearthed have far outnumbered the bodies and led some excavators to infer that heads alone may sometimes have been set up on the walls of the shrines. From the excavations at Taxila it is now clear that this inference was mistaken, and that originally the number of heads was equal to the number of bodies. This observation is true of smaller as well as larger figures, but the bodies of the former are usually composed of plaster throughout and are proportionably stronger than the bodies of the latter. In the case of the smaller reliefs,[2] the entire body was separately modelled and then impaled on a stick and so affixed to the still fresh coating of plaster on the wall; and even the tolerably large figures on the plinth of stūpa A 15 at Jauliāñ seem to have been treated in this way. In the modelling of the figure, a common practice seems to have been to work the plaster freely into shape with the boasting tool, and then to finish it off, when dry, with a chisel. This procedure, however, was by no means invariable. Many of the reliefs, especially the smaller ones, retain a fine slip of lime or shell plaster, which was applied before the final definition was given to the features, and it is evident from the fine lines impressed with a modelling tool round the nostrils, etc., that the paste below the slip must have been still moist when the latter was applied. The slip itself was white or cream coloured. Red was commonly used to pick out the lips, edges and folds of

[1] On this subject, see also *The Stūpas and Monasteries at Jauliāñ*, pp. 37–8.

[2] *Ibid.* Pl. XIX, *a*, *b*.

eyelids, edges of nostrils and hair, and wrinkles of the neck, forehead and ear-lobes. Black or grey-black was used for the hair, eyebrows, and pupils of the eyes. In some figures of atlantes, however, red instead of black is found on the hair, beard and moustache; and red was also used on the robes of the Buddha and for indicating the wheels (one of the *mahāpurusha lakshaṇas*) on the soles of his feet. It is to be noted, however, that in some cases the red colouring on face and garments served only as a groundwork for gilding, which time has since destroyed. In attempting, therefore, to visualise these stucco figures in their pristine beauty, we must remember always to take into account the polychromy and gilding with which they were freely embellished.

Use of mo.

Let it be added that moulds were used on occasion by the sculptors of Taxila, as they were used also by the sculptors of Central Asia, but with one signal difference; for whereas the latter endeavoured to get the entire front view of the head, including head-dress and ears, out of a simple mould and were compelled in consequence to flatten the faces of their figures, the artists of Taxila were content to employ the mould merely for the most difficult part of the head, viz. the mask, leaving the remaining parts—ears, hair, head-dress and neck—to be executed by hand, and thus achieving an altogether more varied and artistic result.

The following are the respective sites where the sculptures described below were unearthed. The precise findspot of each is given in the catalogue itself.

Sirkap, Block B: no. 11; Block D: nos. 1–10, 12–29.
Dharmarājikā: nos. 72–85.
Giri: nos. 97, 98.
Mohṛā Morādu: nos. 30–8.
Jauliāñ: nos. 39–71.
Kālawān: nos. 86–96.
Bhamāla: nos. 99–102.

GROUP A. STUCCO SCULPTURES OF THE PARTHIAN PERIOD

(Cf. ch. 5, pp. 154–5.)

CLASS I. *Sculptures in the Hellenistic style* (nos. 1, 2)

1. One of the best examples of sculptures in this style is the bearded head, no. 1, from the apsidal temple D in Sirkap = Sk. '13–2,043; sq. 56·63'; stratum II. The head, of which the height is 8·12 in., is that of a typical Greek satyr, with pointed ears, broad flat nose, moustache, beard and free-flowing locks. There is nothing mechanical or crude about the workmanship. The features are modelled with feeling, and there is an intensity of expression in the knitted brows and half-parted lips and a boldness in the treatment of the hair and beard that bespeak a thorough mastery over the material, but at the same time a proper understanding of its limitations. The strong, almost portrait-like individuality that characterises the countenance is typical of Greek art in its later phases; it is never found in early Indian art; nor is it a characteristic of the Gandhāra School. With this and the following head the reader should compare the little head of Dionysus in silver repoussé figured in Pl. 209, *a*, which is equally characteristic of Hellenistic craftsmanship. *A.S.R.* (1912), Pl. XVII, *c*. (Pl. 148, no. 1.)

2. Another head in the Hellenistic style, is that figured in Pl. 148, no. 2. (Sk. '13–2,065; sq. 55·62'; stratum II; height 4·5 in.). It, too, is bearded, but the beard in this instance is treated in simpler masses, and there is a quiet dignity and repose about the features that find

their nearest parallel among cult statues of the Greek pantheon. Unfortunately, the upper part of the head is mutilated, but what remains is quite enough to show that the sculptor had an intimate knowledge of Hellenistic art. Cf. *A.S.R.* (1912), Pl. XVIII, *c*.

CLASS II. *Sculptures in bastard Hellenistic style* (nos. 3–18)

These are the sculptures executed by local craftsmen in more or less imitation of Greek or Graeco-Roman models. Some of them resemble the small terra-cotta figurines of this period found at Akra and other contemporary sites, including Sirkap itself. ('Terra-cottas', ch. 24, nos. 46–9; Pl. 133.) On the top of the head there is commonly a topknot encircled with a bandeau or wreath, which is often much too small for the size of the head.[1] In front, the hair either falls over the forehead in short strands or is rolled back over the ears. Sometimes it is plaited or braided or curled along the front edge, as in archaic Greek statues.

The sculptures of this class fall into the following five subdivisions, the characteristics of which appear to be mainly due to the idiosyncrasies of the sculptors.

Type *a*. *With nose of normal size, short upper lip and small, rather insignificant mouth*. The eyes are carelessly modelled

3. Sk. '13–2,088; sq. 54·62'; stratum II. Height 6 in. Female head with heavy laurel wreath. Hair parted from centre and rolled back over the ears, with two rosettes over the left ear. Right side of forehead and part of nose damaged; topknot missing. Lime-wash. (Pl. 148, no. 3.)

4. Sk. '13–2,118; sq. 54·61'; stratum II. Height 5 in. Female head. Hair parted in centre and rolled back over ears; the topknot being bound round with a twisted kerchief. Ear-pendant missing on left side. (Pl. 148, no. 4.)

5. Sk. '13–2,107; sq. 54·62'; stratum II. Height 6·37 in. Female head. Hair arranged in corkscrew curls falling like a wig over forehead and ears, and surmounted by a high topknot tied at the base with a bandeau. Small ear-pendants. (Pl. 148, no. 5.)

6. Belonging to the same class as the above but in sharp contrast with them, by reason of the different treatment of the eyes, is the head Sk. '12; Trench A 481; stratum II (height 4·12 in.). In this case the eyes are wide open and staring, with highly arched eyebrows, while the hair is arranged in ringlets with a topknot above, as it was on heads of the Buddha. For the wide-open, staring eyes, cf. ch. 25, no. 63, and ch. 36, pp. 693–4. (Pl. 148, no. 6.)

Type *b*. *With nose of normal size, full lips, and short upper lip.*

7. Sk. '13–2,021; sq. 63·62'; stratum II. Height 4·2 in. Female head, with rather short hair combed from the crown over the forehead, and with a topknot which was once encircled with a wreath. Rosette over right ear. Long cylindrical pendants in ears (preserved in left ear only). (Pl. 148, no. 7.)

8. Sk. '13–2,008; sq. 63·62'; stratum II. Height 4·5 in. Female (?) head, with highly arched brows and slightly smiling lips. Wears heavy ear-pendants; hair combed on to forehead and plaited or braided at the fringe. Above, smooth plain wreath, which may have been painted. Cf. *A.S.R.* (1912), Pl. XVIII, *b*. (Pl. 148, no. 8.)

9. Sk. '13–2,006; sq. 63·62'; stratum II. Height 4·75 in. Female head. The eyes are carelessly modelled and the shape of the face is irregular, as if intended to be seen from one side only, like many of the later stuccos. The hair falls thickly from the crown over forehead and ears;

[1] It seems not unlikel that the *ushnisha* of the Buddha image evolved in Gandhāra had its origin in these topknots.

crowning it is a segmented wreath, encircling the topknot. Cf. *A.S.R.* Pl. XVIII, *e*. (Pl. 148, no. 9.)

10. Sk. '13–2,025; sq. 63·62'; stratum II. Height 3·75 in. Bearded head, with eyes deep-set, but sketchily drawn, overhanging brows, and long oval face. The modelling under the eyes is cleverly done. Top of head and ears missing. (Pl. 148, no. 10.)

Type *c*. *With shortish nose and short upper lip, but wider mouth, heavier jaws and a squarer shape of head.* The workmanship is crude, and the modelling of the eyes especially defective.

11. Sk. '12–165; sq. 36·65'; stratum I. Height 6·5 in. Hair in crescent over forehead and plaited at edge. Topknot and twisted wreath. Mouth wide and smiling. Ear-ring in right ear. Left ear missing. (Pl. 148, no. 11.)

12. Sk. '13–2,034; sq. 63·62'; stratum II. Height 5·5 in. Female(?) head. Short hair falling over forehead. Heavy wreath with smooth surface (?painted) round topknot. Ear-rings in both ears. Trace of lime-wash. (Pl. 148, no. 12.)

13. Sk. '13–2,027; sq. 63·62'; stratum II. Height 6 in. Hair cut across forehead. Topknot, bandeau and left ear missing. Large eyes and mouth; teeth visible; short wide nose. Cf. *A.S.R.* (1912), Pl. XVII, *b*. (Pl. 148, no. 13.)

14. Sk. '13–2,026; sq. 63·62'; stratum II. Height 5·75 in. Hair curled at edge across forehead and over the ears. Part of wreath and topknot missing. Cf. *A.S.R.* (1912), Pl. XVIII, *a*. (Pl. 148, no. 14.)

Type *d*. *With bulging forehead, very short nose, and short upper lip.*

15. Sk. '13–2,080; sq. 54·62'; stratum II. Height 6·25 in. The head is shaved except for a single tuft of hair which falls from the crown over the forehead and is tied in a ball at the end. Wears heavy ear-rings. Eyes very sketchily modelled. Cf. *A.S.R.* (1912), Pl. XVII, *d*. (Pl. 148, no. 15.)

16. Sk. '13–2,051; sq. 56·63'; stratum II. Height 5·25 in. Hair parted over forehead and taken back over ears. Topknot and wreath missing. Eyes sketchy and somewhat slanting. Mouth small. (Pl. 148, no. 16.)

Type *e*. *Heads of Parthian(?) type, wearing moustache.* With them may be compared the relief in shell no. 12, illustrated on Pl. 208, no. 51.

17. Sk. '19–1; south-west of D; stratum II. Height 3 in. Wears short hair falling in strands over forehead. The top and back of the head being broken, it is uncertain whether there was a topknot and wreath or not. (Pl. 149, *a*.)

18. Sk. '13–2,050; sq. 56·63'; stratum II. Height 5·25 in. The hair is curled in a double line of ringlets over forehead and falls over the ears like a wig. The top and back of the head are missing. Ear-ring in left ear; right one is missing. (Pl. 149, *b*.)

CLASS III. *Heads of Bodhisattva(?) type with turban and moustache, carelessly modelled eyes, long thin nose, and rather heavy jaw* (nos. 19–22)

19. Sk. '13–2,105; sq. 54·62'; stratum II. Height 13·5 in. Indian turban in three rolls, crossing in the centre of the forehead and finished with a fantail ornament above. Eyelids carelessly put in. Nose thin and 'wooden'. The moustache, which is missing, was affixed separately. Cf. *A.S.R.* (1912), Pl. XVII, *a*. (Pl. 149, *h*.)

20. Sk. '13–2,007; sq. 63·62'; stratum II. Height 4·75 in. Turban as above. Ear-pendant in left ear; right ear missing. The nose is better modelled, but the eyes are very sketchy. Cf. *A.S.R.* (1912), Pl. XVIII, *d*. (Pl. 149, *c*.)

21. Sk. '12–247; sq. 63·65'; stratum I. Height 4 in. Similar to preceding, but with large open eyes. Ear-rings in both ears. (Pl. 149, *d*.)

22. Sk. '13–2,158; sq. 54·60'; stratum II. Height 5·5 in. Similar, but without moustache. The ears and part of right cheek are missing. Observe the circular indentation in the short upper lip. (Pl. 149, *e*.)

CLASS IV. *Torsos and limbs* (no. 23)

23. Few pieces of the torsos or limbs belonging to these heads have been preserved. The biggest fragment is no. 23 (= Sk. '13–2,125; sq. 54·61'; stratum II; height 8 in.). It belongs to the figure of a well-developed woman, with her left arm bent double and leaning on a cushion. The head and lower part of the body are missing, as well as the left shoulder and left hand. The modelling is vigorous, but coarse and clumsy, with little feeling for plasticity.

CLASS V. *Architectural fragments* (nos. 24–9)

These comprise part of a lotus capital, no. 24 (= Sk. '13–2,100; sq. 54·62'; stratum II; height 8 in.), with bead-and-reel moulding below the leaves, and fragments of various swags or garlands used to decorate the sides of the stūpas. Of the latter, no. 25 (= Sk. '12–815; sq. 65·64'; stratum II; length 10 in.) is adorned with six-petalled flowers overlapping one another; another (no. 26 = Sk. '12–1,027; sq. 66·66'; length 7·5 in.), with five-petalled flowers between crossed bands; a third (no. 27 = Sk. '12–820; stratum II; length 7 in.), with clusters of grapes and acanthus leaves; a fourth (no. 28 = Sk. '12–815; sq. 65·64'; stratum II; length 10 in.), with simple obcordate petals; and a fifth (no. 29 = Sk. '12–815; sq. 65·64'; stratum II; length 11·75 in.), with quatrefoil blossom in reticulated pattern. (Pl. 149, *f*, *g*, *i*, *j*.)

GROUP B. SCULPTURES OF THE INDO-AFGHĀN SCHOOL
(FOURTH AND FIFTH CENTURIES A.D.)

The sculptures of the Indo-Afghān School, which are represented by the following examples, fall into certain well-defined categories. In the first come the figures of the Buddha, which, as we have already seen, retain, generally, the traditional characteristics which distinguished them in the Gandhāra School. In the second are the Bodhisattvas, which are generally recognisable at a glance by their elaborate head-dresses and the profusion of their jewellery. To the third category belong the monks, who wear the same robes as their Master but, unlike him, have shaven heads; and along with the monks a few specimens of Brāhmanical ascetics. The fourth category comprises a multitude of *devas* and lay-worshippers, both male and female, who are represented making offerings or doing obeisance to the Blessed One or to the Bodhisattvas. In the fifth category is included an equally numerous and varied company of *yakshas* or genii, which share, with the lions and elephants, the burden of supporting the tiers of the stūpa-plinths. These atlantes, as we may rightly call them, since the original conception of them was certainly derived from Greek prototypes, are depicted with an endless variety of grotesque faces and in every kind of writhing and tormented posture. The lions and elephants, as well as the bulls which crown the Persepolitan pilasters, make up the sixth and last category.

STUCCO RELIEFS OF MOHṚĀ MORĀDU. Nos. 30–8, *a*. (Cf. ch. 18, pp. 358–64.)

A. *Reliefs on the main stūpa*. Among the most beautiful sculptures of the Indo-Afghān School, whether of stucco, clay or terra-cotta, are the reliefs already referred to, on the south face of the main stūpa at Mohṛā Morādu. This face was divided by slender pilasters into eight bays, each of which was subsequently adorned with a group of figures, comprising one or more images of the Buddha with attendant Bodhisattvas or *devas*, while the faces of the pilasters themselves were enriched with two seated figures of the Buddha, one above the other, some enthroned on lotuses, some on simple seats. Of these eight groups the most arresting is the one in the fourth bay from the western end, to which the premier place was evidently given in virtue of its being opposite, or virtually opposite, the central north-south axis of the stūpa drum. The group in this bay, nos. 30, 31 (Pls. 150, *a*, 151), comprised a seated Buddha in the middle with a standing Bodhisattva on either side, two celestial beings (*devas*) coming out of the background, on each side of the Buddha's head, and two other figures—probably Bodhisattvas—enthroned on lotuses in the top corners. The image of the Buddha in the centre is seated in the Teaching attitude (*śikshā-mudrā*) on a lion-throne (*siṁhāsana*), in front of which are four miniature figures of lay-worshippers, including perhaps the donor of the group, two on one side of a bowl, two on the other. All the reliefs are coated with a thin slip of fine plaster, and there are traces on them of the buff, red and black paints with which such figures seem to have been invariably embellished. The beauty of the group is necessarily much impaired by the damage it has sustained, especially to the head and hands of the central image, but the attendant Bodhisattvas and the *deva* above the left shoulder of the Buddha give us a splendid conception of what the Indo-Afghān School, at its best, was capable of achieving. In the whole range of Indian sculpture it would be difficult to point to figures more beautifully conceived or more perfectly executed than these. Observe the Bodhisattva on the right (Pl. 151); how dignified his posture, as he stands slightly inclining towards the central image; how calm his expression; how delicate the modelling of his features. And notice, too, with what consummate skill the sculptor has handled his garments, draping the *dhotī* ever so lightly and gracefully about his legs, turning the long scarf in stylish folds about his arms, and giving to the whole a delicate suggestion of movement, as if the Bodhisattva were being borne insensibly towards the Buddha. Then turn from this figure and observe the *deva* above, emerging out of the background. Nothing could be more tender than the attitude of his hands or more gentle than the expression on his face, as he descends from heaven to do homage to the Great Teacher. It is not only that these figures are nobly conceived; they are finished in every detail with exquisite grace and feeling.

The draperies merit special notice. Although more formal and stylish than Hellenistic draperies, they exhibit the same technical methods as the latter in the treatment of their folds; that is to say, the mass of the material between the folds is cut away, and the folds themselves left standing out in relief, as they naturally

do in any thin material. Roman sculptors, as is well known, made a practice of cutting away only the narrow folds and leaving the mass of the material between them unchiselled, thereby saving much labour but producing an effect which was not true to nature. Obviously it is much easier to adopt the Greek method when modelling in plaster or clay than when chiselling stone or marble, and, provided that a sculptor is conscientious in his work, it is the method to which, irrespective of tradition, he must inevitably be led, since it is the only one that is correct. But in the case of the Indo-Afghān School, there can be little room for doubt that in this, as in many other features, it inherited the Hellenistic tradition through the Gandhāra School. That does not mean, of course, that this phase of art was merely a derivative or later reflexion of Gandhāra art. It owed many of its motifs and ideas and much of its hieratic character to that art, but it went far beyond it, both in pure decorative beauty and in the expression of religious sentiment, and in these spheres it established new and far-reaching traditions which profoundly influenced the character of the Gupta and later medieval art of India.

Compared with the foregoing, the reliefs in the other bays are of little interest. It might have been expected that the groups to the right and left would have been made to balance or at least to correspond in some measure with one another. But this was not the case. The bay on the left, i.e. the third in order from the south-west corner, contains the seated Buddha (no. 32 = Pl. 150, *b*) in the Teaching attitude, and on each side of him a Bodhisattva seated cross-legged on a lotus, while between them were smaller standing figures[1] and other Bodhisattvas and *devas* above. The group is not unattractive, but it misses altogether the fine feeling and masterly handling of the central one. The modelling of the Buddha is less sympathetic, his draperies coarser and more formal, and the two seated Bodhisattvas have none of the dignity and grace that belong to their standing counterparts in the other bay. Their drawing and modelling are weak, their ornaments not so refined, and the countenance of the one on the right (the only countenance preserved) wears an almost fatuous expression. In the second and fifth bays (nos. 33, 34 = Pl. 152, *a*, *b*) the inferiority is still more marked. In each bay there are three seated Buddhas in the attitude of Teaching or of Meditation, and between them stand two Bodhisattvas. None of the figures, either seated or standing, has any pretention to artistic merit, let alone to spiritual beauty; they are merely stock types turned out, as it were, and repeated mechanically at so much a figure, as we shall see presently that thousands of miniature figures were repeated on the smaller stūpas. A typical specimen is the standing Bodhisattva on the right hand of panel 34, which is illustrated on a large scale on Pl. 155, *c*. Setting it by the side of the corresponding figure of the central group, one can see at once how weak and ill-proportioned it is, the head and feet too big for the rest of the body, the features awry, the expression devoid of meaning, the ornaments and drapery clumsy and overdone.

B. Detached heads, etc. Nos. 35–8. Besides the reliefs *in situ* many detached heads and other fragments of stucco were found among the ruins at Mohṛā Morādu, among which the following are deserving of special notice:

35. Mm. '15–297; cell 19; 8 ft. below surface. Height 7 in. Small head of the Buddha, in a fine state of preservation and remarkable for the beauty of its high-caste and finely modelled features. Only the ear-lobes are damaged. The *ūrṇā* is small, but prominent; the hair waved back from the forehead. Traces of red paint on lips, eyelids, forehead and neck. This head

[1] One of these standing figures—between the Buddha and the seated Bodhisattva on his right—was too decayed to be replaced when the panel was set up in the museum.

affords a good opportunity of examining the technique of these figures. Over the plaster is a fine slip of lime or more probably fine 'shell' plaster, applied before the final definition was given to the features. The paste must have been still soft when the slip was put on, and it was not until after the application of the latter that the fine lines were impressed with a modelling tool around the nostrils, etc. The face is left white, but the lips, edges of nostrils, rims and folds of eyelids, edges of hair, folds of neck and ear-lobes, are picked out in red, and the hair is coloured grey-black. Observe the long and narrow eyes, slanting upwards at the outer corners, the small and sensitive nostrils, the full lips and prolonged ear-lobes. Cf. p. 362 (4) *supra*; *A.S.R.* (1915), Pl. xx, *d.* (Pl. 153, *a.*)

36. Mm. '18–4; east of main stūpa; ground-level. Height 5·37 in. Stucco head of a Bodhisattva. Wavy hair parted in the middle and confined within a fillet, and curled above the ears. Crown of the head missing. Tip of nose damaged. Lime-wash. Note the elongated and oblique eyes. For this and the three following, cf. p. 359 *supra.* (Pl. 153, *d.*)

37. Mm. '27–9; between stūpas I and II; 2 ft. 3 in. below surface. Height 6·75 in. Stucco head of a lay-figure, wearing long moustache. The right eye, ears, forehead and hair are missing. The jaw is heavy and the cheeks well modelled. (Pl. 149, *l.*)

38. Mm. '15–292; east of main stūpa; 12 ft. below surface. Height 5 in. Stucco head of Bodhisattva. Ears and head-dress damaged. No *ūrṇā*. Traces of crimson paint on lips. Hair grey-black; roughened with age. Cf. *A.S.R.* (1915–16), p. 26, no. 3. (Pl. 153, *c.*)

38, *a.* Mm. '15–16, 216. *Harmikā* of kañjūr, coated with stucco, 22·5 in. wide × 10 in. high. Traces of blue and red paint. From the small stūpa. Cf. *A.S.R.* (1915–16), p. 29, no. 6. (Pl. 149, *k.*)

STUCCO RELIEFS OF JAULIĀÑ. Nos. 39–71. (Cf. ch. 20, pp. 371–84.)

For variety and extent the collection of stucco figures found at the *saṅghārāma* of Jauliāñ is by far the most important at Taxila. It does not contain anything up to the standard of the finest reliefs at Mohṛā Morādu, but, on the other hand, it comprises countless examples of every kind of figurine employed in the fifth century to adorn the smaller class of stūpas. In describing these stucco sculptures of Jauliāñ we shall start with the large and medium-sized images found *in situ*, then proceed to the smaller figurines also *in situ*, and close our account with the detached heads and other *disjecta membra* which were lying among the fallen debris.

A. Large and medium-sized sculptures in situ. Nos. 39–42. These are found either in the image-shrines (e.g. no. 39 *infra*) or decorating the bases of stūpas (e.g. nos. 40, 41 and 42) or in niches let into the monastery walls or on pedestals in front of some of the cells. On the base of the main stūpa the images are, as usual, divided one from the other by pilasters; on the smaller stūpas the pilasters are sometimes absent.

39. Jn. '27–F585. A fine group of stucco figures found in chapel E1 at Jauliāñ, and now in the museum. In the centre is seated the Buddha in the attitude of Meditation (*dhyāna-mudrā*) with a standing Buddha to his right and left and two attendant figures behind. Of the latter, the one to his right is carrying the fly-whisk (*caurī*); the other, as suggested by his head-dress, is Indra, holding the thunderbolt (*vajra*) in his left hand. On the central image are still many traces of the red and black paint and of the gold-leaf with which it, and doubtless the other

figures also, were once bedecked. All five figures are of lime plaster, on a core of kañjūr, rubble and clay. In style they are not on a par with the reliefs in the fourth bay of the main stūpa at Mohṛā Morādu (p. 521 *supra*), and the attendant figures are especially stiff and formal, but the central figure of the Buddha is an impressive example of the conventional images of this period and the finest, in a complete state, at Taxila. Soon after its discovery this group was shattered to bits by a fanatic, but reconstructed with infinite skill and unwearying patience by my assistant, Mr M. Gupta. Cf. p. 377 *supra*; *Jn. Mem.* Pl. XIII, *b*. (Pl. 155, *a*.)

40. Jn. '27–F586. Seated colossal Buddha in the *dhyāna-mudrā*, occupying the bay between a pair of pilasters on the south face of the main stūpa opposite to stūpa A11. Four smaller figures of the Buddha, one in the *śikshā-* and the others in the *dhyāna-mudrā*, are seated, one above the other, on lotuses, on the faces of the pilasters. All of these figures, large and small, belong to the fifth century A.D. The central image, like all such large images of this period, is composed of a core of large blocks of kañjūr stone covered with clay, and finished with a thick coating of lime stucco. The workmanship is rough and the style mechanical. (Pl. 154, *a*.)

41. Jn. A15. A row of Buddhas in the attitude of Meditation, seated side by side on the plinth of stūpa A15. This is probably one of the earliest of the smaller stūpas at Jauliāñ, and it is not unlikely that the form of decoration found here represents an earlier stage than that found in most of the neighbouring stūpas (e.g. D1, D4, A16), but, if this is so, the images of the Buddha must have been remade in the fifth century A.D. since it is quite certain that, as they stand, they are among the latest reliefs on the site, being both stereotyped in style and coarse in workmanship. Cf. p. 372 *supra*. (Pl. 155, *b*.)

42. Jn. '17–F589; east face of stūpa A11. Height 23 in. Stucco image of the Bodhisattva Maitreya, in the attitude of Meditation, holding an unguent-flask in the fingers of his left hand. Wears ear-pendants, necklaces and bangles. The state of preservation is excellent, but the modelling is mechanical and the features heavy and soulless. As a rule, Maitreya is seated in European fashion, and is seldom portrayed in the *dhyāna-mudrā*. Cf. p. 373 *supra*. (Pl. 155, *d*.)

B. Small sculptures in situ. Nos. 43–8 (cf. ch. 20, pp. 372–3). These are found on a large class of stūpas at Jauliāñ and elsewhere. The stūpas commonly have a square base, circular drum, dome and a range of umbrellas, but from most of them the superstructure has now perished and the bases only remain. The latter are generally divided into three horizontal tiers, diminishing in width and height as they ascend, and divided one from the other by dentil cornices. The principle of decoration is the same for all three tiers; it consists of a series of stunted pilasters with shallow niches between them. In the two lower tiers the pilasters are usually in the debased Corinthian style; in the uppermost, in the debased Persepolitan. The niches are in the form either of a trefoil arch or of a portal with sloping jambs, which was the form in fashion at this time for the doorways of monastery cells. These two forms of niches alternate with one another on the faces of the stūpas, both horizontally and vertically. Within the niches are seated Buddhas or Bodhisattvas—the former in the attitude either of Meditation or of Teaching; on either side of the niches, between them and the pilasters, are pairs of figures bringing offerings to or worshipping the Buddha. In order to increase the height of the two lower tiers without diminishing the number of niches, an extra row of figures was added at their base. In the lowest tiers these figures commonly consisted of the forefronts of lions alternating with atlantes, which are shown supporting the weight of the superstructure above them. In the second tier the lions were frequently replaced by elephants.

To the above description it should be added that: (*a*) In the second and top tiers the forefronts of lions and elephants were sometimes added at the base of the portal jambs and trefoil arches which enclosed the niches. (*b*) The Persepolitan pilaster-capitals were usually crowned with bulls, back to back. (*c*) The atlantes generally took the form of warriors or musicians or figures holding wine-cups. (*d*) The figures beside the Buddha rest, as a rule, on a kind of lotus stool. Sometimes they are two Buddhas, seated and meditating; sometimes they are two monks or two lay-worshippers, kneeling and praying or bringing offerings of fruit or flowers in their robes or in a basket, or occasionally with caskets in their hands, containing treasures of one kind or another (no. 43 = Pl. 156, *a*). (*e*) Figures of seated Buddha are sometimes substituted on the face of the Corinthian pilasters in place of the usual small incised panels, e.g. on the pilasters on the west face of stūpa D4 (no. 44 = Pl. 154, *b*). The above was the scheme of decoration on the majority of these small stūpas, but in some cases it was varied by inserting a row of seated Buddhas or Bodhisattvas side by side and without any adventitious decoration beneath the lowest course of lions and atlantes, as in stūpa A11. In a few cases, as in A15, the whole plinth was occupied by such figures, but as already stated, this may represent an earlier type of decoration.

Such intensive repetition of figures is not found in stūpas of the earlier Gandhāra School. The new fashion was to some extent the result of the stereotyping and commercialising of art; but it arose still more from the ever-growing practice of repeating the figures of the Blessed One in countless numbers, so that the donor of them might achieve a corresponding increase in the volume of his merit.

The general appearance of these stūpa-bases will be clear from the illustrations of stūpas A16 and D4 (nos. 45–7) on Pls. 156 and 157.

The former, which is the smaller of the two, is now in the local museum; the latter still stands on the spot where it was unearthed. Although the description given above applies accurately to both, there are certain features that merit further attention. One of these is that, while in stūpa A16 all the figures in the niches are Buddhas seated in the attitude of Teaching or of Contemplation, in the upper section of D4 as well as in D1, Bodhisattvas are substituted for some of the Buddhas. Another noteworthy feature is the sloppy and unconvincing postures of the atlantes, not only on these, but on all the stūpas of this period. It is a natural and logical expectation that any supporting figures of the kind, whether atlantes or caryatids or animals, should be sufficiently big and strong to appear to support the superincumbent weight; but these atlantes are not only absurdly small in proportion to the size of the structure, but they are in attitudes which suggest that, instead of sustaining the mass above them, they are being crushed beneath its burden.

A third point of interest is that among the many pairs of attendants on the Buddhas or the Bodhisattvas we encounter here and there some women. One such pair of women occurs in a panel in the lower row on the north face of stūpa D4 (no. 48 = Pl. 154, *c*). In the centre, is a meditating Buddha, and to right and left of his trefoil niche a woman seated on a high seat in European fashion. The one to

the proper right of the Buddha holds in both hands a covered vessel, the bottom of which rests on her left hand, while with her right hand she seems about to lift off the tall lid. The other one holds in her right hand a drinking-cup and in her left a spear. These are distinguishing attributes of Kubera, the dispenser of riches, in his capacity of leader of the *yakshas*, and later on were transferred to his consort Hārītī, the demon mother of children and giver of prosperity. We may be sure, therefore, that these women are meant to be *yakshiṇīs*, embodying some popular superstition or other.[1] Hārītī herself, so the legend goes, was converted by the Buddha and became an *upāsikā* or lay-disciple; and to feed her 500 children, whom she had formerly fed on the flesh of human children, Buddha told her that the *bhikshus* in the monasteries should every day offer her food from their portions. Hence, I-tsing tells us, an image of Hārītī was placed either in the porch or in the corner of the dining-hall of Indian monasteries, and abundant offerings of food were made to it.[2]

C. *Miscellaneous detached sculptures.* Nos. 49–71 (cf. ch. 20, pp. 371, 384).

Buddhas 49. Jn. '16–57; north-east of main stūpa. Stucco head of the Buddha. Height 21·5 in. Lime-wash. Traces of red paint on edges of hair and on right ear. No slip preserved. This and the following head belonged to two of the colossal Buddhas which adorned the walls of the main stūpa, and are fine specimens of their kind, both probably by the same hand. The hair is treated in much the same way as on the small head from Mohṛā Morādu (no. 35 *supra*) but the features are not so refined and delicate as in that example. The *ūrṇā* was probably composed, as it appears to have been in most of the colossal heads, of a round piece of rock-crystal cut *en cabochon* and sunk in the surface of the plaster. *Jn.·Mem.* p. 42, no. 57. (Pl. 149, *m.*)

50. Jn. '16–32; north-east of main stūpa. Stucco head of the Buddha. Height 21·75 in. Back of head partly missing and ears damaged. Lime-wash. Traces of red paint on hair and ears. Slip not preserved. *Jn. Mem.* Pl. IV, *b* (Pl. 149, *n.*)

51. Jn. '16–F563. Height 6·12 in. This was once a head of exceptional beauty, showing great delicacy in the modelling of the lips and cheeks. Unfortunately, the *ushṇīsha* is missing and the nose and ear-lobes are damaged. There is a buff slip and traces of red paint on lips and eyes, and of black paint on the hair and eyebrows. (Pl. 153, *b.*)

The remaining Buddha heads from Jauliāñ, illustrated on Pl. 158, are much inferior in style and execution to the preceding, but they are the work of various hands and represent several characteristic types of which there are many more examples at Taxila. Thus, no. 52 belongs to a class of heads which are distinguished by a rather small chin and largish mouth, with the underlip defined by a simple curve at the lower edge, giving a slightly supercilious look to the face. In this type, too, both the upper and lower eyelids are bordered by simple instead of reflex curves, and, as a rule, the cheek-bones are wide and pronounced, though more so in other examples than in the one illustrated. No. 53 on the other hand, has a narrower face with higher forehead, more rounded cheeks and a small mouth, which imparts to it a rather insipid and soulless expression; and the same remarks

[1] Cf. Foucher in *Jauliāñ Mem.* p. 28.

[2] Cf. Grunwedel, *Buddhist Art in India*, p. 105.

apply also to no. 54, only that in this type the face is broader, the cheeks fuller and the eyelids heavier. In no. 55, again, we have a more unconventional cast of countenance, with dull, fleshy features in which no spark of inspiration or beauty is visible.

52. Jn. '16–119. West of main stūpa. Stucco head of the Buddha. Height 7·12 in. Buff slip. Traces of red and black paint. This head has been struck from the same mould as the two heads illustrated in my *Memoir on the Stūpas and Monastery at Jauliāñ*, Pl. XIX, *d*, *e*, but it is noteworthy that the hair in each case is differently treated, showing that it was modelled by hand; and there are other small differences as well, due to retouching. The cast of features distinctive of these heads has already been remarked on. (Pl. 158, *a*.)

53. Jn. '16–168, *a*. Main stūpa-court. Stucco head of Buddha. Height 8·5 in. Right eyebrow and *ūrṇā* damaged. Lime-wash. The eyebrows are highly arched; the eyelids more than half-closed and doubly flexured but not oblique; the mouth small and lacking in character. The modelling of all these features and of the cheeks and nose, is refined and delicate. On the other hand, the hair is treated in a very perfunctory manner and evidently relied upon colour to help out its definition. *Jn. Mem.* p. 43, no. 14. (Pl. 158, *b*.)

54. Jn. '16–F 12. Main stūpa-court. Stucco head of the Buddha. Height 7 in. Ears slightly damaged. The hair in this example is treated more effectively than in the preceding, but is still somewhat crude. On the other hand, the definition of eyebrows, eyelids and mouth is not so delicate and there is little mobility in the modelling of the cheeks. *Jn. Mem.* Pl. XIX, *g*. (Pl. 158, *d*.)

55. Jn. '16–192, *b*. From between stūpas A 11 and A 12. Upper part of Buddha figure in the *śikshā-mudrā*; with *saṅghāṭī* over both shoulders. Height 9·37 in. The features are full and fleshy and devoid of all spirituality. The hair is disposed in ringlets, which are perfunctorily indicated by small, round depressions. The hands are well modelled and natural. Traces of red paint on hands, lips, ears, eyes, forehead and *saṅghāṭī*. The left ear is damaged. *Jn. Mem.* Pl. XIX, *b*. (Pl. 158, *c*.)

Bodhisattvas

56. Jn. '16–10. Main stūpa-court. Stucco head of a Bodhisattva. Height 7 in. Right ear missing. Hair confined within a fillet and waved from forehead over the ears. Wears *kuṇḍala* in left ear. This is a particularly fine head with classic but not over-conventionalised features; at once dignified and reposeful. *Jn. Mem.* Pl. XXI, *s* and p. 47, no. 71. (Pl. 158, *e*.)

57. Jn. '16–56. Between chapels C 1 and D 1. Upper part of Bodhisattva figure, with damaged halo and head-dress. Height 6·75 in. He wears an elaborate head-dress and numerous ornaments, including ear-rings, torque and necklace. The hair is bound by a *taenia* with rosettes in front and to either side; above, ends of ribbon bow. A fine decorative piece, recalling to mind some Roman imperial figure. Unfortunately, the surface of the stucco is very rough, and its appearance much impaired thereby. *Jn. Mem.* Pl. XX, *a* and p. 44, no. 29. (Pl. 158, *h*.)

Lay and other attendants

58. Jn. '16–103, *b*. West of stūpa D 4. Upper portion of a female devotee, with face turned to her right. Height 6 in. Hair in corkscrew curls confined by fillet, with fan-tailed head-dress on top. Wears ear-rings and bracelets. Is offering flowers from a fold in her shawl. Observe that the features are slightly lop-sided, owing to the face having been turned partly towards the wall—a defect seen in a great many of these figural reliefs from the sides of stūpas, e.g. nos. 60, 61, 66 *infra*. *Jn. Mem.* Pl. XX, *d* and p. 44, no. 32. (Pl. 158, *g*.)

59. Jn. '16–545. Female figure, with head and legs missing. Height 7·37 in. Wears sleeved tunic and scarf, a necklace with pendant in front and bangles on her wrists. The tunic is fastened with a band above the waist, and falls over it much like the Greek *kolpos*. On scarf and tunic are traces of red paint. The figure is well and vigorously modelled and affords a good illustration of the dress of the period. *Jn. Mem.* Pl. XXII, *a*, and p. 47, no. 79. (Pl. 158, *k*.)

60. Jn. '16–5. West of main stūpa. Upper half of a male attendant, with head turned to right. Height 7·25 in. Hair curled back over forehead and ears. Wears torque and cylindrical ear-ring. What appears to be a twisted scarf is thrown over the right shoulder. *Jn. Mem.* p. 48, no. 89. (Pl. 158, *i*.)

61. Jn. '16–34. South of main stūpa. 1 ft. 6 in. below surface. Head of a devotee with elaborate head-dress and *ushṇīsha*-like top-knot. Height 2·5 in. Wears ear-rings. Red paint on lips, nose and eyelids, and black paint on eyebrows, eyeballs and hair. *Jn. Mem.* Pl. xx, *h*, and p. 44, no. 38. (Pl. 158, *l*.)

antes

62. Jn. '16–F25. Upper half of an atlant, holding club or sword in right hand and strap in left. Height 7·62 in. His hair is confined within a bordered cap, and falls in wig-like masses over both ears. Note the large prominent eyes, strongly modelled brow, full, fleshy cheeks and lips. *Jn. Mem.* Pl. xxii, *j* and p. 48, no. 90. (Pl. 158, *n*.)

63. Jn. '16–23. Between stūpa and chapel. Stucco head of a figure with a prominent brow and cheek-bones. Height 3·37 in. A medallion on *taenia* over forehead. Left side damaged. *Jn. Mem.* Pl. xxiii, *g*, p. 49, no. 95. Observe the exceptional vigour and freedom in the modelling of the features. (Pl. 158, *j*.)

64. Jn. '16–161, *d*. Between main stūpa and A13. Upper half of atlant. Height 2·87 in. With wide-open eyes and thick moustache. Mace in right hand and straps in left, with which he is holding his burden. Cf. no. 26. *Jn. Mem.* Pl. xxii, *c*. (Pl. 158, *o*.)

65. Jn. '16–114, *b*. From north of D3. Stucco head of atlant. Height 1·75 in. Hair confined within a cap turned back in front and looped on right side. Thin buff slip and traces of red paint on lips, eyebrows, eyelids, forehead and head-dress. The eyes are wide-open and prominent, the nose flat, the chin very small. *Jn. Mem.* Pl. xxiii, *b*, p. 49, no. 100. Like the faces of most of the atlantes, the face is meant to be a caricature. (Pl. 158, *f*.)

66. Jn. '16–159, *b*. Between main stūpa and A10. Head of atlant, turned slightly to proper left. Height 1·75 in. Shaggy hair in coarse locks, bulbous nose and misshapen mouth, with prominent teeth. *Jn. Mem.* Pl. xxiii, *f*, p. 49, no. 94. (Pl. 158, *m*.)

67. Jn. '16–186, *b*. North of D4. Head of atlant. Height 1·5 in. Elephant ear on left side, deep-sunk eyes, thick flat nose, and half-open mouth. For the immense ear, cf. the head from Haḍḍa in Afghānistān, illustrated in Hackin, *L'Œuvre de la Délégation archéologique française en Afghanistan* (1922–32), fig. 23. *Jn. Mem.* Pl. xxiii, *e*, p. 48, no. 93. (Pl. 159, *a*.)

68. Jn. '16–4, *c*. West of main stūpa. Head of atlant. Height 1·87 in. Buff slip. Hair in ringlets, falling over forehead and ears; moustache and beard indicated by red paint. Red paint also on lips, nose, eyelids, eyebrows, and hair. Left side broken. *Jn. Mem.* Pl. xxiii, *k*, p. 49, no. 99. (Pl. 159, *d*.)

Animals

69. Jn. '16–160. Main stūpa-court. Half of a seated humped bull. Length 2·75 in. From top of Persepolitan capital. Horns missing. Traces of red paint on forehead. (Pl. 159, *b*.)

70. Jn. '16–180. Head of elephant with uplifted trunk. Height 5·25 in. Right tusk and left ear damaged. Red paint on trunk, neck, eyelids and mouth, and black paint on eyes. Buff slip. From base of the second tier of small stūpa. (Pl. 159, *c*.)

Miscellaneous

71. Jn. '17–1, *a*. East of stairway of main stūpa. This head (height 10·37 in.) has been reserved to the end because it has a place apart from all other heads on the site. The treatment of the hair in small ringlets suggests that it may have been meant for a Buddha, but the features conjure up some Roman portrait. Certainly there is little Indian about it. The exceptional breadth of the face and lowness of the forehead are noteworthy. The surface, unfortunately, is much damaged and the back of the head broken. *Jn. Mem.* Pl. xxiv, *a*, p. 44, no. 35. (Pl. 159, *e*.)

Stucco Figures of the Dharmarājikā Stūpa

Nos. 72–85. (Cf. ch. 10, pp. 249, 254, 257, 267, 269, 271.)

72. Dh. '15–893. From inside chapel N17. Head of the Buddha belonging to a colossal standing figure. Height 13·25 in. Conventional type, with hair taken back from forehead. Finely modulated mouth. Circular dimple in upper lip; highly arched eyebrows; eyelids half-closed. *Ūrṇā* originally painted on plaster, not in relief or inlaid. Cf. p. 269 and nos. 49, 50 *supra*; *A.S.R.* (1915), Pl. III, *g*. (Pl. 159, *f*.) Buddhas

73. Dh. '14–824. From B23. A fine Buddha head of conventional type with hair waved sideways from central parting. Height 11·25 in. Face proportionately broader and nose shorter than in preceding example. *Ūrṇā* originally painted on forehead. Illustrated in *A.S.R.* (1914–15), Pl. IX, *a*.

74. Dh. '13–1,536. From east of G3. Head of the Buddha. Height 8 in. *Ushṇīsha* missing. *Ūrṇā* mark in relief. Upper eyelids more open and mouth more fleshy than in preceding examples. Base of nostrils emphasised by impressed lines. Cf. p. 257 (1) *supra*; *A.S.R.* (1912–13), Pl. VI, *b* and p. 20, no. 1. (Pl. 159, *g*.)

75. Dh. '12–1,955. From stūpa J, west side. Stucco head of the Buddha with elongated face, highly developed forehead, oblique eyes and eyebrows. Height 8·37 in. Slightly smiling mouth, with full under-lip. Conventional curly hair indicated by small incised circlets. *Ushṇīsha* and ears missing. Traces of red paint on lips. Buff slip. (Pl. 159, *j*.)

76. Dh. '16–352. From north-west side of stūpa Q1. Stucco head of Buddha, with eyes smaller than usual and eyebrows flatter. Height 6·87 in. *Ushṇīsha* missing; tip of nose and ear-lobes damaged. Lime-wash. No *ūrṇā*. (Pl. 159, *h*.)

77. Dh. '12. From chapel B12. Stucco head of Bodhisattva with face slightly more elongated than usual and well-rounded chin. Height 9 in. Eyes half-closed. Hair disposed in strands falling from the *ushṇīsha* and ending in curls suggestive of bronze technique; round the forehead it is confined in a circlet. *Ūrṇā* mark in relief. Cf. p. 249 *supra*; *A.S.R.* (1912), Pl. V, *c*. (Pl. 159, *i*.) Bodhisattva

78. Dh. '16–918. From debris of stūpa U1. Stucco head with skull-cap. Height 6 in. Observe the fleshiness and mobility of the features and the relative breadth of the nose, which is less conventionalised than in the Buddha and Bodhisattva heads. The pupils of the eyes are rather prominent. Left ear and rosette of cap are missing. (Pl. 160, *a*.) Lay and other attendants

79. Dh. '14–686. From chapel R3. Stucco head of a lay-figure, intended to be seen from the right side. Height 3·85 in. Hair and ears damaged. Lime-wash. Buff slip. Observe the well-arched eyebrows, open horizontal eye, somewhat short nose and long upper-lip, with a rather pronounced under-lip. The expression is a very homely and natural one. Cf. p. 254 *supra*; *A.S.R.* (1914–15), Pl. VI, *d* and p. 6, no. 2. (Pl. 160, *b*.)

80. Dh. '14–666. From debris west of main stūpa. Stucco head of a lay-figure, intended to be seen from proper right. Height 4·25 in. Wears moustache. Eyes deep-set, and nose broad at base. Kerchief covering the head and knotted over right ear, like skull-cap. Buff slip. Traces of red paint on kerchief. (Pl. 160, *c*.)

81. Dh. '13–1,800. From P4. Stucco head wearing elaborate cap with jewelled rosette on right side. Height 6·37 in. Features somewhat conventional, suggesting a Bodhisattva or *deva*; eyes slightly oblique, modelling of cheeks delicate, chin small; lips full and pleasing. Buff slip. Traces of paint on cap, rosette and lips; nose damaged. Cf. p. 267 *supra*; *A.S.R.* (1912), Pl. VI, *e*. (Pl. 160, *d*.)

82. Dh. '14–174. From R2, debris. The figure wears a *dhotī* and shawl and is seated in the *lilāsana* attitude, holding in the left hand a bowl containing some uncertain object. Height 6·75 in. Round the neck are two necklaces. Right foot missing. It is evidently the figure of an

attendant from the right side of a Buddha or Bodhisattva image. Cf. p. 254 *supra*; *A.S.R.* (1914), Pl. VI, *b*. (Pl. 160, *e*.)

82, *a*. Dh. '15–1,490. From east gate of main stūpa; 2 ft. below surface. Torso and right leg of standing male figure. Height 7·25 in. Well modelled. Nude, except for scarf and collar. Cf. *A.S.R.* (1915–16), p. 8, no. 3. (Pl. 156, *b*.)

Monks and ascetics

83. Dh. '13–189. From north-east of main stūpa. Stucco head of monk with bald head, shaggy eyebrows and wrinkles on cheeks and forehead. Height 5 in. Deep-set, wide-open eyes. Tip of nose and ears damaged. Observe the dreamy, distant look obtained by drawing down the under-lids of the eyes. Cf. *A.S.R.* (1912), Pl. VI, *d*. (Pl. 160, *f*.)

84. Dh. '15–1,141. From north side of stūpa P8. Height 4·75 in. Stucco head of an ascetic with drawn features, deep-set eyes and haggard expression. Ear-lobes protracted. Right side of skull missing. Cf. p. 271 *supra*; *A.S.R.* (1915), Pl. III, *f*. (Pl. 160, *g*.)

Amorini

85. Dh. '14–552. From chapel P4. Stucco head of boy, shaven except for three tufts of hair over ears and centre of the forehead. Height 3·5 in. Ear-pendant in left ear. Right ear missing. Probably a garland-bearing Amorino. Cf. p. 267 *supra*; *A.S.R.* (1914), Pl. XII, 14. Closely resembling it are two other heads also from the same site, viz.: Dh. '16–12 (height 3·5 in.) and Dh. '16–295 (height 3·25 in.). (Pl. 160, *h*.)

Stucco Figures of Kālawān

Nos. 86–96. (Cf. ch. 14, pp. 324–5, 332.)

Buddhas

86, *a*, *b*, *c*. Three heads of Buddha images struck from the same mould, but exhibiting slight differences in the finishing of the hair and other details. The facial type represented by these heads, with its rather short nose, full cheeks and chin, and pronouncedly curved lips, is characteristic of many of the stucco sculptures found at Kālawān, as well as of one or two from the Dharmarājikā Stūpa, but not represented at other sites.

86, *a* = Kn. '31–86. Found to the north of A4; 3 ft. 6 in. below surface. Height 5·5 in. Nose and left eye and cheek damaged.

86, *b* = Kn. '31–234. From east of A4; 5 ft. below surface. Height 6 in. Tip of nose and right ear-lobe damaged. (Pl. 160, *i*.)

86, *c* = Kn. '31–464. From south of A4; 4 ft. 6 in. below surface. Height 5·6 in. (Pl. 161, *a*.)

Bodhisattvas

87. Kn. '31–141. From south of A7; 3 ft. 6 in. below surface. Height 5 in. Head of Bodhisattva with *ushṇīsha* and long hair taken back behind the ears. Wears large ear-pendants. Front of hair missing. For facial type, see above, no. 86, *a*, *b*, *c*. (Pl. 161, *b*.)

88. Kn. '31–431. From east of A12; 6 ft. 6 in. below surface. Head of Bodhisattva wearing ear-pendants and fillet band over hair, with small peak above. The expression is gentle but weak. Height 5 in. (Pl. 161, *c*.)

89. Kn. '31–473. From west of A4; 8 ft. below surface. Statue of Bodhisattva wearing *dhotī*, shawl, necklace and neckband. Head and legs below knees missing. Height 14 in. In his left hand he holds an uncertain object, probably a flask; if so, the Bodhisattva portrayed may be Maitreya. The modelling is refined and effective, though the edges of the draperies tend to be slightly cumbersome. (Pl. 161, *e*.)

Lay-worshippers and attendants

90. Kn. '31–136. From south of A6; 3 ft. below surface. Head of a lay-figure. Height 3·5 in. The hair, which falls over the forehead, is finished with a fringe of curls or braided border. On the crown is a cap with band and frontlet attached—the latter in the form of a cylinder, intended probably to contain a relic. (Pl. 161, *d*.)

91. Kn. '31–287. From south-east of A14; 4 ft. below surface. Head of figure with Persian (?) head-dress and lappet covering the ears. Height 4·25 in. Broken on left side. Observe the large eyes and mouth and the full cheeks and chin, typical of sculptures at Kālawān. Cf. nos. 86, 87 *supra*. (Pl. 161, *f*.)

92. Kn. '31–442. From west of A 4; 4 ft. below surface. Height 5·3 in. Head of a lay-worshipper with ear-pendants and fillet over the hair. Below fillet, in front, is a crescent, and above it, a small peak. Tip of nose and right side of hair damaged. (Pl. 161, *g*.)

Ascetics and monks

93. Kn. '31–507. From east of A 12; 3 ft. below surface. Height 3·6 in. Head of ascetic (?) with hair coiled on crown of head, moustache and beard. The eyes are large and prominent and the lips full. Traces of a yellowish slip and of red paint are observable on the beard, moustache and cheek. There is a breadth and freedom in the modelling of this head which distinguishes a number of the Kālawān sculptures, notably nos. 86, 87, 91. (Pl. 161, *i*.)

94. Kn. '31–440. From west of A 4; 4–7 ft. below surface. Head of ascetic with long hair drawn back over ears, *ushṇīsha*-like topknot and fillet over brows. Height 5·6 in. Wears pendants, moustache and beard. Tip of nose and front of fillet damaged. If this is a Brāhmanical ascetic, it is not clear why he should have a fillet and ear-rings. Observe the same wide-open eyes and full lips as in the previous example. (Pl. 161, *h*.)

Atlant

95. Kn. '31–446. From west of A 4; 4 ft. below surface. Head of grotesque atlant figure or of one of the warriors from Māra's army. Height 3·25 in. Observe the protruding teeth and prominent eyeballs and rough matted hair, standing on end. Tuft of hair at each end of the lips. Traces of red paint on hair. Chin damaged. (Pl. 161, *j*.)

Warrior

96. Kn. '31–300. From west of A 4; 2 ft. below surface. Height 10 in. Part of body and legs of a warrior, wearing a *dhotī* and coat of mail. Probably a warrior from Māra's army. (Pl. 161, *k*.)

Stucco Figures of Giri

Nos. 97, 98. (Cf. ch. 15, p. 345.)

Buddha

97. Gr. '27–329. From near the southern outer wall. 6 ft. 2 in. below surface. Head of the Buddha with chrome yellow slip over the face. Height 7·75 in. Traces of black paint on the brows and of red on lips. Left side of head damaged and *ushṇīsha* missing. A very conventional type, of little distinction. (Pl. 161, *l*.)

Bodhisattva

98. Gr. '27–321. From main stūpa, panel 5; 4 ft. 4 in. below surface. Head of a Bodhisattva with ornamental head-dress bunched into a topknot on the crown. Height 9 in. Left ear and tip of nose damaged. (Pl. 161, *n*.)

Stucco Figures of Bhamāla

Nos. 99–102. (Cf. ch. 22, pp. 392, 396.)

Dying Buddha

99. Bl. '29–340. Panel from the plinth on the south-east side of the main stūpa, 28 × 18 in. It depicts the Buddha's *mahāparinirvāṇa*. Between two Corinthian pilasters the Buddha is lying at full-length on his right side. Behind him are four mourning figures, of whom the one near his feet seems to be a woman. Below, on the face of the plinth, are four other small figures, of which the one near the head is a Dhyāni Buddha, and the one near the feet a devotee kneeling with folded hands. The two central figures appear to have swooned with grief at the sight of their dying Master. This is the only stucco panel from this part of India which depicts the Buddha's death-scene. (Pls. 118, *b*; 161, *m*; the latter showing the relief as set up in the museum.)

Lay worshippers (?)

100. Bl. '29–56. From debris on the east steps. 3 ft. below surface. Head of a lay-[illegible]hipper (?) of exceptionally good workmanship. Height 5·5 in. But observe the inordinate [illegible] forehead and the relative smallness of the eyes, nose and mouth. The modelling is free and [illegible] technique being that of terra-cotta rather than stucco. This is very noticeable in the cur[illegible] hair, which are made separately and stuck on, as they commonly are in terra-cotta heads. (Pl. [illegible])

101. Bl. '29–55. From debris on the east steps. 3 ft. below surface. Height 6·37 in. Head of a lay-worshipper (?) with conical cap or helmet over long hair. The sparse moustache and oblique eyes suggest a Mongolian type. The nose is damaged and left ear missing. There is a hole in the neck intended for a wooden dowel for securing the head to the body. (Pl. 161, *p*.)

102. Bl. '29–193. From north of the east steps; 12 ft. below surface. Head of a lay-worshipper. Height 5·62 in. Wears moustache and fillet band across the forehead. Right ear and part of hair missing. There is a dowel-hole in the neck for securing the head to the body. The eyes are wide-open and prominent; the eyebrows highly arched and well marked, the nose small and bulbous, the cheeks full and the under-lip loose. Possibly it is a portrait head. (Pl. 161, *q*.)

Chapter 27. IRON OBJECTS

(INCLUDING STEEL)[1]

THE OBJECTS of iron described below represent only a small fraction of those brought to light at Taxila; for the vast majority were in so fragmentary and corroded a state that even their form was unrecognisable; and in many cases nothing remained but a rusty discoloration of the surrounding soil to show that they had ever existed. Of the 221 objects included in the list more than four-fifths came from the Śaka-Parthian strata of Sirkap and the early medieval monasteries at Jauliāñ, Mohṛā Morādu, etc., and less than one-fifth from the Bhiṛ Mound and the early settlements in Sirkap. This disparity, however, must not be taken to imply that iron at Taxila was less common in the centuries before than in the centuries after Christ. It is simply because iron, which is peculiarly liable to corrosion and disintegration, has the best chance of survival when subjected to great heat (without of course being melted) and then buried in wood ash, and that these conditions were fulfilled only in the case of the objects found in some of the Śaka-Parthian buildings of Sirkap and the later monasteries of Mohṛā Morādu, Jauliāñ, etc., of which the former were burnt out by the invading Kushāns and the latter by the White Huns. In the lower settlements of Sirkap and in the Bhiṛ Mound no such general conflagrations appear to have occurred, though individual houses were burnt down, and the number of iron objects that escaped disintegration was accordingly very small.

Disparity of iron objects on earlier and later sites explained

As will be seen from the subjoined stratigraphical chart, the objects that have survived fall into five groups, viz.: (A) Household utensils, (B) Arms and armour, (C) Horse-bridles and elephant-goads, (D) Carpenter's and blacksmith's tools, and (E) Agricultural implements. Besides these, there is also a small group (F) of miscellaneous articles such as needles and plummets, and a number of unwrought ingots. Some of these objects are clearly of foreign origin, by which I mean that they are copied from non-Indian prototypes. Thus, in Group A, the ladles with vertical handles (nos. 24, 25), candelabra (nos. 33–5), wheeled braziers (nos. 37, 38) and folding chair (no. 54) were all familiar types in the Graeco-Roman world of the first century A.D., but not previously known in India. In Group B, again, the heavy iron javelins (nos. 64–6), plate armour for men and horses (nos. 90, 91), helmet (no. 92), and shield-bosses (nos. 93–5), and in Group C, the snaffle-bits (nos. 95–8) and cheek-bars (nos. 99, 100) were introduced into the North-West by the conquering Greeks or their successors, the Śakas and Parthians. Even in some of the arrow-heads (nos. 72–89) we detect the influence of the Bactrian Greeks; in

Classification

Objects of foreign origin

[1] It should be noted that only in the case of the ten specimens in the Table of Analysis on p. 536 has the precise nature of the metal, whether iron or steel, been determined. Other specimens described in this chapter and classed, generally, as iron, may be either iron or steel.

others the influence of the Śakas, Parthians and White Hu·ıs. Carpenter's and blacksmith's tools and agricultural implements (Groups D and E) were least likely, perhaps, to be affected by foreign innovations, but it is noteworthy that even among them scissors (no. 135) and the spade (no. 198) made their first appearance at Taxila in the first century A.D., about the same time that they did in the Mediterranean area.

Abundance and purity of Indian iron

Probably in no country of the world is iron found more abundantly than in India, and in none are the ores from which it is extracted of greater purity or more easily accessible. Once, therefore, that the use of iron had been discovered and its advantages over copper and its alloys proved, Indians could have had little difficulty in obtaining adequate supplies of the metal. Indeed, the sources from which it might have been traded to Taxila are so many, that there would be small purpose in naming them. From a very early period India was famous for the high quality of its iron and steel. Thus Ktesias, who was at the court of Persia in the fifth century B.C., mentions two remarkable swords of Indian steel presented to him by the king of Persia and his mother, and it has been plausibly suggested that the *ferrum candidum* of which the Malloi presented a hundred talents' weight to Alexander the Great, was the same metal. Again, the *Periplus* informs us that in the first century A.D. Indian iron and steel were being exported from Ariaça (Gulf of Cambay and thereabouts) to Abyssinia, and *ferrum Indicum* also figures in the lists of dutiable articles under Marcus Aurelius and Commodus. Salmasius, too, speaks of a Greek treatise (now lost) on the tempering of Indian steel.

High quality of Indian steel in ancient and medieval times

Of the fame enjoyed by Indian steel in medieval and later times there is no less evidence. Writing in the twelfth century, Idrisi says: 'The Hindus excel in the manufacture of iron. They have also workshops wherein are forged the most famous sabres in the world. It is impossible to find anything to surpass the edge that you get from Indian steel.' In the following century Marco Polo speaks of iron and *ondanique* in the markets of Kerman, and the latter has been recognised by Yule as a corruption of the Persian *hundwániy* (= Indian steel), which was used for the far-famed sword blades of Kerman. Tavernier, again (1605–80), writes: 'The steel susceptible of being damascened comes from the kingdom of Golconda; it is met with in commerce in lumps about the size of a halfpenny cake; they are cut in two in order to see whether they are of good quality, and each makes half the blade of a sabre.' (Cf. McCrindle, *Ancient India, its invasion by Alexander the Great*, p. 252 and n. 1; Schoff, *The Periplus of the Erythræan Sea*, ch. 6, pp. 24, 70, 172; Neogi, *Iron in Ancient India*, pp. 66–8; Marco Polo (ed. Yule), bk. I, ch. XVII; Tavernier (ed. Ball), I, 157.)

Analysis of specimens from Taxila and Besnagar

The literary evidence as to the excellence of ancient Indian iron and steel has been fully corroborated by the analysis and micro-examination of selected specimens from Taxila and Besnagar. The latter, which appear to have been pieces of a broken sword used as wedges by the engineers when they were setting up the Khambāba pillar of Heliodorus (*c.* 100 B.C.), and in the opinion of the late Sir

Robert Hadfield must have been deliberately manufactured as steel,[1] yielded the following analysis:

C	Si	S	P	Mn	Fe
0·7	0·04	0·008	0·02	0·02	99·3

The ten specimens from Taxila, which have also been examined for me by the same eminent authority, are described in the Table below. Three of them (nos. 1, 2, 5) show a very high carbon percentage, between 1·2 and 1·7% (which is about double that of the Khambāba specimens), and leave no doubt that high carbon steel was being knowingly made as such at this period in India. On the other hand, it is a matter of surprise that these specimens show no signs of having been tempered. The absence of such tempering in a single or even in two specimens might perhaps be explained on the hypothesis that they were newly made and unused and for that reason had not yet been tempered, but this explanation could hardly be true of all three specimens, and we must therefore conclude that the makers of these objects were either ignorant of the process of tempering or did not think it necessary to temper steel of such high quality. Seeing, however, how close were the relations at this time between Taxila and the Western world, it seems scarcely possible that the art of tempering could have been unknown there.

Process employed in production of steel

As to the process by which this ancient steel was produced, it was probably the same as that by which the celebrated wootz steel is still produced—or was, at any rate, being produced until a recent date—in the South of India. In this process, which is known as 'cementation', wrought iron is first obtained by the direct method, viz. by heating the ores of iron with charcoal in small blast furnaces (the blast being produced by means of hand-bellows) without the intermediate formation of cast iron. 'The wrought iron is then cut into small pieces and placed in crucibles along with certain kinds of wood and leaves of plants, and then heated in charcoal blast furnaces with the lids closed. The blast is continued from four to six hours, when the steel is obtained in a molten condition. Water is then sprinkled or poured on the metal, which is thus hardened on being quenched and the steel is obtained in a crystalline condition.' (Neogi, *Iron in Ancient India*, p. 72. Cf. also Dar. et Sag. *s.v.* 'Ferrum', p. 1093, and for further particulars of the process, Heyne, *Tracts on India, historical and statistical*, p. 359; Buchanan, *Travels from Madras through Mysore, etc.*, vol. I, pp. 118, 306; vol. II, pp. 20, 118, 308; Percy, *Metallurgy*, vol. II, p. 778.)

Tavernier's remarks quoted above about Indian steel being traded in lumps 'of the size of a halfpenny cake', agree with what H. G. Graves says concerning the blooms used for forging the iron beams at Konārak, which according to his measurements averaged some 6 in. in length by 1–2 in. in cross-section and weighed from three to four pounds,[2] but it is to be noted that the latter are of iron, not of steel. The 108 ingots found in Sirkap and described below (nos. 217–20) are of much the same size and weight, averaging about 5·4 × 1·4 in. and weighing from 1½ to 4 lb.

[1] Cf. *A.S.R.* (1913–14), pp. 203–4.

[2] Neogi, *op. cit.* p. 48.

TABLE OF ANALYSIS, BRINELL HARDNESS AND MICRO-EXAMINATION

	Serial no. in list below	Taxila reference	Description	Length (in.)	Brinell hardness	Av.	Probable nature of the material
1	57	Sk. '16–229; stratum II	Double-edged sword Copper guard	15 —	233 236 47	235 —	High carbon material; about 1·3–1·5 % carbon
2	58, *a*	Ch.T. D. '21-3	Fragmentary sword	9·9	234 240 240	238	High carbon material; about 1·5–1·7 % carbon
3	62, *a*	Sk. '12–96; stratum II	Dagger End of blade near haft Micro piece from point-end of dagger	9·4	161 167 161	164	Medium or low carbon material severely decarburised on the surface
4	59, *a*	Bm. '24–897; stratum IV	Dagger	9·6	134 128	131	Probably iron
*5	116	Sk. '20–76; stratum II	Adze for carpenters Away from edge Near cutting-edge	5·75	— 220 240 259 236	— 240	— High carbon steel (1·23 %)
†6	109	Sk. '24–98; stratum II	Axe	5·75	103 106 167	125	Iron
7	120	Sk. '16–1,124; stratum II	Chisel	5·25	106 106 110	107	Iron
8	126	Sk. '15–294; stratum II	Knife	5	122 118	120	Iron
9	88, *a*	Sk. '26–2,847; stratum II	Arrow-head, three-flanged	4·1	177 187	182	Medium or low carbon steel
10	63	Bm. '19–505; stratum I	Spear-head, double-edged	7·5	105 121	113	Iron

Analysis	C	Si	S	P	Mn.
*5, 116	1·23	0·28	0·004	0·024	0·01
†6, 109	0·10	0·03	0·004	0·062	Nil

Specimen no.	Micro-examination
1	Micro no. 8134. Structure consists of small slightly elongated grains of ferrite and spheroidal carbide, the result of decomposition of the pearlite. The grains are outlined by cementite. Traces only of decarburisation round the outer surface. Non-metallic inclusions fairly small and comparatively few.
2	Micro no. 8135. Structure similar to specimen 1, but cell walls of cementite thicker and grains larger and more elongated. Slight partial decarburisation of the surfaces. Non-metallic inclusions similar to those in specimen no. 1.
3	Micro no. 8136. Shows a core of small ferrite and pearlite grains, corresponding to material of 0·15–0·25 % C. surrounded by a skin 0·1–0·25 mm. in thickness of coarse columnar-shaped grains of ferrite. Non-metallic inclusions moderately large and numerous.

Remarks

Sir Robert Hadfield remarks on the above: 'The very low sulphur content in the two specimens analysed is in accordance with our experience with practically all previous Indian specimens. The phosphorus content is rather low compared with many of these previous specimens, one of which ran as high as 0·303. At the same time there have been specimens (no. 2441—Khambâba) as low as 0·020.

'The chief feature of the present specimens is the high carbon percentage, 1·23, in no. 5. The Brinell hardness and the micro-structure of nos. 1 and 2 also indicate they are of similar high carbon. We have never come across any ancient specimens as high as this before. The highest was 0·7 carbon in the Khambāba specimen, 2441, and this was so exceptional that we thought at the time it must be a fluke.

'Evidently the Indians in this locality (Taxila), and at this period, quite deliberately made high carbon steel. But apparently they did not know how to harden and temper. If they had, the two swords, specimens 1 and 2, and the adze (no. 5) would be just the articles to apply this treatment to. The micro gives no indication of anything more than the ordinary heating for forging, and of course the hardness is only ordinary.

'The specimens with low carbon, if no. 3 can be taken as representative of these, contain the usual amount of non-metallic inclusions. The high carbon specimens are, however, comparatively clean.'

TABLE SHOWING DISTRIBUTION OF IRON OBJECTS IN SIRKAP

Block	Strata VI–V Greek	Stratum IV Early Śaka	Strata III–II Śaka-Parthian	Stratum I Surface
			East side of Main Street	
1	—	—	45, 62	78
A	—	—	—	—
B	—	—	36, 213	154, 155
C	—	—	107, 109, 121, *b*, 142, 190, 193, 197, 219	—
D	—	—	—	—
E	—	84	11, 100, *a*, *b*, 129	—
F	—	211	—	—
G	—	—	69, 146, 157	200
H	—	—	9, 105, 121, *c*, 188	—
I	—	—	24, 38, 43, 49, 54, 77, 87, 126, 172, 203, 207	6, 49, 144
J	—	—	10, 68, 98, 108	111
K	—	—	41, 44, 48, 91, 97, 116, 125, 133, 137, 139, 216	—
L	—	—	58, 132, 138, 140, 141, *a–c*, 148, 214, 215	—
			West side of Main Street	
1′	119	—	13, 145	—
A′	—	—	2, 4, 120, 149, 186, 212	—
B′	—	29	3, 110, 192, 194	37
C′	—	—	35, 95, 96, 102, 124, 185, 198, 218	—
D′	—	22	14, 15, 18, 42, *a–y*, 88, 94, 104, 147, 158, 217	220
E′	—	—	1, 17, 20, 33, 57, 106	—
F′	—	—	5, 60, 61, 90, 162, 201	—
G′	—	—	156	—
H′	—	—	—	—
K′	—	—	53, 93, 180	—
Main Street	—	—	30, 115, 121, *a*, 187	—
Fifth Street (west)	—	—	65, 66	—

Note. Objects found in trial trenches or spoil earth are not included in the above Table.

STRATIGRAPHICAL CHART OF IRON OBJECTS

Class	Bhir Mound strata: IV 5th to 6th century B.C.	Bhir Mound strata: III 4th century B.C.	Bhir Mound strata: II Maurya	Bhir Mound strata: I Surface	Sirkap strata: VII ?Pre-Greek	Sirkap strata: VI–V Greek	Sirkap strata: IV Early Śaka	Sirkap strata: III–II Late Śaka-Parthian	Sirkap strata: I Surface	Other sites[1]	Class
Group A. Household Utensils											
I. Cooking-pots or cauldrons (nos. 1–4)	—	—	—	—	—	—	—	1–4	—	—	I
II. Tripod stands (nos. 5, 6)	—	—	—	—	—	—	—	5	6	—	II
III. Bowls (nos. 7–12)	—	—	7	—	—	—	—	9–11	—	8 from Ml. 12 from Dh.	III
IV. Dishes and saucers (nos. 13–15)	—	—	—	—	—	—	—	13–15	—	—	IV
V. Frying- and baking-pans (nos. 16–18)	—	—	—	—	—	—	—	17, 18	—	16 from Ss.	V
VI. Spoons and ladles (nos. 19–25)	—	—	19	—	—	—	22	20, 21, 24, 25	—	23 from Gr.	VI
VII. Sieve (no. 26)	—	—	26	—	—	—	—	—	—	—	VII
VIII. Scale-pans(?) (nos. 27–9)	—	—	27	—	—	—	29	28	—	—	VIII
IX. Lamps (nos. 30–2)	—	—	—	—	—	—	—	30	—	31 from Jn. 32 from Jn.	IX
X. Candelabra (nos. 33–5)	—	—	—	—	—	—	—	33–5	—	—	X
XI. Incense-burner (no. 36)	—	—	—	—	—	—	—	36	—	—	XI
XII. Wheeled braziers (nos. 37, 38)	—	—	—	—	—	—	—	38	37	—	XII
XIII. Shovels (nos. 39, 40)	—	—	—	—	—	—	—	39, 40	—	—	XIII
XIV. Bells (nos. 41–7)	—	—	—	—	—	—	—	41–5	—	46 from Dh. 47 from Jn.	XIV
XV. Locks, keys and lock-plates (nos. 48–53)	—	—	—	—	—	—	—	48, 53	49	50 from Pl. 51 from Hl. 52 from Mm.	XV
XVI. Folding chair (no. 54)	—	—	—	—	—	—	—	54	—	—	XVI
XVII. Axle of spinning-wheel(?) (no. 55)	—	—	—	—	—	—	—	—	—	55 from Mm.	XVII
Group B. Arms and Armour											
XVIII. Swords and daggers (nos. 56–62, a)	59, a	—	59	—	—	—	—	56–8, 60–2, 62, a	—	58, a from Ch. T. D	XVIII
XIX. Spears, javelins and butt (nos. 63–71)	—	—	64	63	—	—	—	65, 66, 68, 69	—	67 and 71 from Mm. 70 from Jn.	XIX
XX. Arrow-heads (nos. 72–89)	—	—	72–6, 80–3, 85	—	—	—	84	77, 87, 88	78, 88, a	78 from Dh. 86 and 89 from Kun.	XX
XXI. Armour, helmet and shield bosses (nos. 90–5)	—	—	—	—	—	—	—	90–5	—	—	XXI
Group C. Horse-bridles and Elephant-goads											
XXII. Bits and cheek-bars of horse bridles (nos. 96–100)	—	—	—	—	—	—	—	96–9, 100, a, b	—	—	XXII
XXIII. Elephant goads (nos. 101, 102)	—	—	101	—	—	—	—	102	—	—	XXIII

Group D. Carpenter's and Blacksmith's Tools, etc.											
XXIV. Axes (nos. 103–11)	—	—	103	—	—	—	—	104–10	111	—	XXIV
XXV. Adzes (nos. 112–17)	—	112	113	—	—	—	—	115, 116	114	117 from Jn.	XXV
XXVI. Chisels (nos. 118–21, c)	—	—	118	—	—	119	—	120, 121, 121, a, b, c	—	—	XXVI
XXVII. Knives and chopper (?) (nos. 122–8)	—	123	122	—	—	—	—	124–7	—	128 from Mm.	XXVII
XXVIII. Saw (no. 129)	—	—	—	—	—	—	—	129	—	—	XXVIII
XXIX. Tongs, pliers and tweezers (nos. 130–4)	—	—	130	—	—	—	—	131–3	—	134 from Gr.	XXIX
XXX. Scissors (no. 135)	—	—	—	—	—	—	—	—	135	—	XXX
XXXI. Hammers, adze-hammer and picks (nos. 136–42)	—	—	—	—	—	—	—	137–42	—	—	XXXI
XXXII. Anvils or beak-irons (nos. 143–9)	—	—	143, 144	—	—	—	—	145–9	—	—	XXXII
XXXIII. Nails, nail-bosses and hooks (nos. 150–66)	—	—	150–2	—	—	—	—	156–8, 162	154, 155	159, 160 and 166 from Jn. 161 from Dh. 153, 163 and 165 from Mm. 164 from Kun.	XXXIII
XXXIV. Clamps and staples (nos. 167–76)	—	—	—	—	—	—	—	172, 174	—	169 from Mm. 170, 171 and 173 from Jn. 175 and 176 from Dh.	XXXIV
XXXV. Hinges (nos. 177–9)	—	—	—	—	—	—	—	—	—	177 from Mm. 178 and 179 from Jn.	XXXV
XXXVI. Chains (nos. 180–1)	—	—	—	—	—	—	—	180	—	181 from Kun. 181, a from Jn.	XXXVI
Group E. Agricultural Implements											
XXXVII. Spades, spuds and hoes (nos. 182–99)	—	—	182–4	191	—	—	—	185–90, 192–4, 197, 198	—	195 from Dh. 196 from Kun. 199 from Jn.	XXXVII
XXXVIII. Weeding-forks(?) (nos. 200–2)	—	—	—	—	—	—	—	201	200	202 from Dh.	XXXVIII
XXXIX. Sickles (nos. 203–7)	—	—	—	—	—	—	—	203, 207	—	204 and 205 from Dh. 206 from Gr.	XXXIX
Group F. Miscellaneous											
XL. Nos. 208–21	—	—	—	—	—	—	211	212–19	220	208 and 221 from Dh. 209 and 210 from Gr	XL

Note. The following objects picked up from spoil earth or debris, are not included in the above list, viz. no. 79 (arrow-head) from Bhir Mound; nos. 136 (hammer) and nos. 167, 168 (clamps) from Sirkap.

[1] Ch.T. = Chir Tope; Dh. = Dharmarājikā; Gr. = Giri; Hl. = Hathiāl; Jn. = Jauliāñ; Kun. = Kunāla; Ml. = Mahal; Mm. = Mohṛā Morādu, Pl = Pippala; Ss. = Sirsukh.

Some general remarks on the iron objects from the Bhiṛ Mound will be found in vol. I at pp. 101, 104, 107; and on those from Sirkap at pp. 128, 134–5, 207–8. Other references are given in the individual entries of the catalogue below.

GROUP A. HOUSEHOLD UTENSILS

CLASS I. *Cooking-pots or cauldrons* (nos. 1–4)

With round bottom and wide-open mouth, resembling the modern *haṇḍī* and *ghaṛā*. They date from the first century A.D. Cf. 'Pottery', ch. 23, Class IX, type *c*, and Class IV; 'Copper and Bronze', ch. 28, Class XII, nos. 1–4.

1. Iron cooking-pot of *haṇḍī* type with rounded bottom and everted rim. It is made in two sections and riveted round the middle. Two handles were attached on the shoulder. Body and handles damaged. Height 12 in. Sk. '27–1,465; Block E'; sq. 70·119'; stratum III. Cf. p. 185 *supra*. (Pl. 162, *a*.)

2. Similar, but without ring-handles. Bottom damaged. Height 8 in. Sk. '28–104; Block A'; sq. 27·90'; stratum II. Cf. p. 195 *supra*. (Pl. 162, *b*.)

3. Similar and of same date, but with vertical neck like the modern *ghaṛā*. Height 9·25 in. Sk. '20–342; Block B'; sq. 33·86'; stratum II. Cf. p. 194 *supra*. (Pl. 162, *d*.)

4. Similar and of same date but with the two sections welded instead of being riveted. Height 7·75 in. Sk. '20–219; Block A'; sq. 27·78'; stratum II. Cf. p. 195 *supra*. (Pl. 162, *c*.)

CLASS II. *Tripod stands for cauldrons or cooking-pots* (nos. 5, 6)

5. Tripod stand. Diam. 10·75 in. It consists of a ring supported on three legs. On the inside of the legs are looped projections. First century A.D. Sk. '28–2,335; Block F'; sq. 90·83'; stratum III. Cf. p. 183 *supra*. (Pl. 162, *e*.)

6. Similar and of same date. Diam. 10·62 in. Sk. '15–215; Block I; sq. 135·54'; stratum I. Cf. p. 170 *supra*; *A.S.R.* (1915), p. 18, no. 20.

CLASS III. *Bowls* (nos. 7–12)

With rounded bottom and sides and lip sometimes incurved, as in 'Pottery', ch. 23, Class XV, *a*; 'Stone', ch. 25, Class X; 'Copper and Bronze', ch. 28, Class XVI, *a*; 'Silverware', ch. 29, Class IV. No. 7 dates from the third century B.C.; nos. 8–11 from the first century A.D.; no. 12 from the fifth century A.D. (?).

7. Shallow bowl of iron, slightly damaged. Diam. 4·12 in. Third century B.C. Bm. '19–636; sq. 13·11'; stratum II. (Pl. 162, *f*.)

8. Hemispherical iron bowl with incurved rim. Diam. 7·62 in. First century A.D. Ml. '20–91/1; sq. 63·84'; 2 ft. 6 in. below surface. Cf. p. 215 *supra*. (Pl. 162, *g*.)

9. Shallow iron bowl with curved base and sides tending to the vertical. Diam. 4·62 in. First century A.D. Sk. '15–516; Block H; sq. 125·68'; stratum II. Cf. p. 170 *supra*. (Pl. 162, *h*.)

10. Similar to no. 1, with slightly flattened base. Diam. 4·37 in. First century A.D. Sk. '26–1,387; Block J; sq. 146·51'; stratum II. Cf. p. 171 *supra*.

11. Similar to preceding, with rounded base. Diam. 4·75 in. Sk. '27–3,222; Block E; sq. 68·46'; stratum II. Cf. p. 162 (15) *supra*. (Pl. 162, *i*.)

12. Similar. Diam. 4·75 in. Probably fifth century A.D. Dh. '15–756. T2. 3 ft. below surface. Cf. p. 247 *supra*.

CLASS IV. *Dishes and saucers* (nos. 13–15)

All these come from Sirkap and belong to the first century A.D. They are flat dishes with splayed sides, flat or slightly convex base and in one case with horizontal rim. Cf. 'Copper and Bronze', ch. 28, Class XVII, *c*; 'Pottery', ch. 23, Class XVI, *a*; 'Stone', ch. 25, Classes VII, VIII; 'Silverware', ch. 29, Class V.

13. Iron dish with splayed sides. Diam. 14·75 in. First century A.D. Sk. '22–388; Block 1'; sq. 10·90'; stratum II. Cf. p. 196 *supra*. (Pl. 162, *k*.)

14. Similar and of same date, but with slightly convex base. Diam. 8·5 in. Sk. '19–1,255; Block D'; sq. 55·112'; stratum II. Cf. p. 190 *supra*.

15. Flat saucer with splayed sides and horizontal rim. Same date as above. Diam. 4·62 in. Sk. '19–958; Block D'; sq. 58·115'; stratum II. Cf. p. 190 *supra*. (Pl. 162, *j*.)

CLASS V. *Frying- and baking-pans* (nos. 16–18)

Type *a*. *Frying-pan with single long handle*. Cf. 'Copper and Bronze', ch. 28, Class XVIII, and 'Pottery', ch. 23, Class XVI, type *c*.

16. Circular iron frying-pan with splayed sides and handle welded on to side. In good preservation. Length 19·5 in. Fourth to fifth century A.D. Ss. '15–20. Tofkiāñ; 4 ft. below surface. Cf. p. 220 *supra*; *A.S.R.* (1915), Pl. XXVI, *b*. (Pl. 162, *m*.)

Type *b*. *Circular baking pans with two loop handles or one lug handle*. Cf. 'Copper and Bronze', ch. 28, Class XIX, types *a*, *b*; and 'Pottery', ch. 23, Class XVI, type *d*.

17. Shallow baking-pan (*taba*) with two loop handles. Partly broken. Diam. 22·25 in. The pan has a concave depression at the middle surrounded by a broad horizontal rim. The loop handles are riveted to the edge. Sk. '22–658; Block E'; sq. 73·83'; stratum II. Cf. p. 185 *supra*. (Pl. 162, *o*.)

18. Two iron baking-pans with flat bottom and splayed sides, stuck together. Each is furnished with a single lug handle riveted to the side. Rim and handle damaged. Diam. 13·5 in. Sk. '19–924; Block D'; sq. 59·114'; stratum II. Cf. p. 190 *supra*. (Pl. 162, *p*.)

CLASS VI. *Spoons and ladles* (nos. 19–25)

Cf. 'Copper and Bronze', ch. 28, Class XX, type *b*, and Class XXI; 'Silver ware', ch. 29, Class VIII.

Spoons:

19. Iron spoon with round shallow bowl and handle on one side broken off above the rim. Diam. 4·75 in. Bm. '21–464; sq. 38·13'; stratum II. (Pl. 162, *s*.)

20. Similar, with splayed sides. Diam. 3·12 in. Sk. '16–161; Block E'; sq. 68·76'; stratum III. Cf. p. 184 *supra*. (Pl. 162, *q*.)

21. Similar to no. 20, but with flat base. Diam. 2·62 in. Sk. '14; Trench A629; stratum II. (Pl. 162, *r*.)

22. Similar to preceding but with pear-shaped bowl. Handle broken. Length 6·75 in. First century B.C. Sk. '19–1,618; Block D'; sq. 60·117'; stratum IV. (Pl. 162, *t*.)

23. Iron spoon with a circular shallow bowl and long straight handle. Length 14 in. Affixed to the handle at a distance of about 2 in. from the bowl is a crescent-shaped stop or clip. Fifth century A.D. (?). Gr. '27–C408. West of stūpa; 3 ft. 4 in. below surface. (Pl. 162, *u*.)

Ladles:

24. Iron ladle with spherical bowl and vertical handle (= κύαθος, cyathus). Diam. 2·37 in. First century A.D. Sk. '20–1,597; Block I; sq. 138·55'; stratum II. Cf. p. 171 *supra*. (Pl. 162, *l*.)

25. Similar. Diam. 1·62 in. Sk. '14; Trench A630; stratum II. (Pl. 162, *n*.)

CLASS VII. *Sieve* (no. 26)

26. Fragment of iron sieve. Length 3·25 in. Bm. '13–17; stratum II.

CLASS VIII. *Scale-pans*(?) (nos. 27–9)

The small iron saucers described below have the appearance of scale-pans, but as they are provided with two loop handles only for suspension, instead of three or four, it is questionable whether they can have been used for this purpose.

27. Small iron pan, with rounded bottom and two loop handles on rim for suspension. Diam. 4 in. Slightly damaged. Third to second century B.C. Bm. '21–1,448; sq. 16·61'; stratum III. (Pl. 163, *a*.)

28. Similar, with flat base. Diam. 4·25 in. First century A.D. Sk. '14; Trench A593; stratum II. (Pl. 163, *b*.)

29. Similar, with one handle missing. Diam. 3·62 in. First century B.C. Sk. '29–575; Block B'; sq. 31·89'; stratum IV. (Pl. 163, *c*.)

CLASS IX. *Lamps* (nos. 30–2)

Type *a*. ***Shallow bowls with pinched mouth for wick.*** Cf. 'Pottery', ch. 23, Class XXI, *a*.

30. Iron lamp in the form of a round shallow bowl, with pinched mouth for wick. Diam. 3·75 in. Sk. '15–187; Main Street; sq. 91·72'; stratum II. (Pl. 163, *d*.)

31. Similar. Diam. 4·62 in. Fifth century A.D. Jn. '16–323; chapel C5; 3 ft. below surface. Cf. p. 384 *supra*. (Pl. 163, *e*.)

Type *b*. ***Standard vase-shaped lamp, with spherical body and handle.***

32. Vase-shaped lamp of iron, with spherical bowl, standard base, narrow neck and serpentine handle. The body is made in two pieces joined at the middle. Length 11 in. Fifth century A.D. Jn. '16–284; cell no. 21; 9 ft below surface. Cf. p. 385 *supra*; *Jn. Mem.* Pl. XXVIII, *f*. (Pl. 163, *f*.)

CLASS X. *Candelabra* (nos. 33–5)

Though of rough workmanship, the few iron candelabra found at Taxila are clearly of Greek or Graeco-Roman parentage. For examples, cf. Spinazzola, *L' Arti decorativi in Pompeii*, Pl. 294; Dar. et Sag. *s.v.* 'Candelabrum'.

33. Iron candelabrum consisting of plain vertical rod with tripod base and leaf-like terminal at top. Circular stop on shaft. Height 39·75 in. Sk. '14–2,051; Block E'; sq. 74·74'; stratum III. Cf. *A.S.R.* (1914), Pl. XXVI, 50.

34. Similar, with two stops on shaft. Height 27 in. First century A.D. Sk. '14; Trench A625; stratum II. (Pl. 163, *h*.)

35. Similar and of same date, with ring-handle on top and five pairs of side-brackets. Height 1 ft. 9 in. Possibly the brackets were intended for the support of lamps such as that

figured under 'Pottery', ch. 23, no. 137. The nearest parallels are of the archaic Classical Period, e.g. Ducati, *Arte Etrusca*, Pl. xxxv, no. 118. Sk. '14–1,551; Block C'; sq. 45·74'; stratum II. Cf. p. 193 *supra*; *A.S.R.* (1914), Pl. xxvi, 47. (Pl. 163, *g*.)

CLASS XI. *Incense-burner* (no. 36)

Cf. 'Pottery', Class XX, *b*; 'Copper and Bronze', ch. 28, Class XXII, nos. 320, 321.

36. Iron incense-burner standing on three legs; handle broken. Diam. 3 in. Sk. '24–124; Block B; sq. 36·49'; stratum II. Cf. p. 148 *supra*. (Pl. 163, *m*.)

CLASS XII. *Wheeled braziers* (nos. 37, 38)

Movable braziers on legs or on wheels were familiar articles of furniture in the Graeco-Roman world, and there can be little doubt that the specimens described below are copied from classical patterns. Cf. Overbeck, *Pompeii*, p. 440, fig. 235. *Gazette Archéol.* (1876), xvii, p. 52. Canina, *Etruria Maritima*, Pl. lviii; *Mus. Chiusino*, vol. i, Pl. xxxix. Dar. et Sag. *s.v.* 'Focus' = Gr. ἐσχάρα.

37. Rectangular wheeled brazier of iron. Size 21 × 19·5 in. Two of the four wheels only have survived and three of the corner handles. Part of the body is broken. Two rings were attached to the body, one in front and one at the back. Sk. '20–110; Block B'; sq. 28·83'; stratum I. Cf. pp. 186, 194 *supra*. (Pls. 163, *i*; 205, *a*.)

38. Two pairs of iron wheels of a movable brazier with axle attached to each pair. The wheels are furnished with sixteen spokes each. Diameter of wheel 7·37 in. Length of axle 2 ft. 5 in. Sk. '26–784; Block I; sq. 136·57'; stratum II. Cf. p. 170 *supra*. (Pl. 163, *j*.)

CLASS XIII. *Shovels* (nos. 39, 40)

39. Iron shovel with flat blade and long straight handle. Length 26 in. Sk. '27–382; Trench D28; stratum II. (Pl. 163, *k*.)

40. Similar. Length 26·40 in. Sk. '24–1,187; stratum II. (Pl. 163, *l*.)

CLASS XIV. *Bells* (nos. 41–7)

Most of the specimens (nos. 41–5) are of the first century A.D.; nos. 46 and 47 are probably of the fifth century A.D. Cf. 'Copper and Bronze', ch. 28, Class XXV. Flinders Petrie, *Objects of Daily Use*, p. 57, nos. 292–305 and Pl. L.

41. Cylindrical bell of iron with ring-handle. Height 2·68 in. The lower part of the bell is damaged. Sk. '24–1,448; Block K; sq. 155·66'; stratum II. Cf. p. 176 *supra*. (Pl. 163, *n*.)

42, *a–y*. Twenty-five iron bells found adhering to one another. Cylindrical shape with slightly tapering sides. Ring-handle at top. Height of one is 8·5 in; of the rest between 4 and 2·62 in. Sk. '27–1,551; Block D'; sq. 61·118'; stratum III. Cf. p. 190 *supra*. (Pl. 163, *o*.)

43. Similar, but clapper missing. Handle damaged. Height 2·5 in. Sk. '26–480; Block I; sq. 138·61'; stratum II. Cf. p. 171 *supra*. (Pl. 163, *r*.)

44. Similar, but sides more splayed. Clapper missing. Height 2·62 in. Sk. '14–379; Block K; sq. 161·46'; stratum II. Cf. *A.S.R.* (1914), Pl. xxvi, 49. Cf. p. 176 *supra*. (Pl. 163, *s*.)

45. Bowl-shaped bell of iron. Clapper and ring-handle missing. Diam. 4 in. Sk. '16–1,072; Block 1; sq. 12·59'; stratum II. Cf. p. 142 *supra*. (Pl. 163, *p*.)

46. Large cylindrical bell of iron, with ring-handle. Height 12·25 in. Slightly damaged; clapper missing. Dh. '30–712; sq. 15·10'; 3 ft. 10 in. below surface.

47. Bowl-shaped bell of iron; clapper missing. Traces of copper rust at the edge. Height 2 in. Jn. '16–F54; monastery. Cf. p. 385 *supra*; *Jn. Mem.* Pl. xxviii, *n*. (Pl. 163, *q*.)

Class XV. *Locks, keys and lock plates* (nos. 48–53)

Cf. 'Copper and Bronze', ch. 28, Class XXVI, and remarks there made, which apply to the iron specimens equally with those of copper and bronze.

48. Iron key, with ring-handle and four teeth. Length 4·5 in. First century A.D. Sk. '14–314; Block K; sq. 154·60'; stratum II. Cf. p. 176 *supra*. (Pls. 164, no. 48; 184, *o*, no. 6.)

49. Similar and of same date, with square moulded top. Length 4 in. Sk. '26–1,002; Block I; sq. 133·52'; stratum I. Cf. p. 171 *supra*. (Pl. 164, no. 49.)

50. Similar, but the wards are perforated with four irregular holes instead of being provided with teeth. Ringed handle. Length 4·62 in. Fifth century A.D. Pippala '21–160; cell 23; 6 ft. 7 in. below surface. Cf. p. 367 *supra*. (Pls. 164, no. 50; 184, *o*, no. 5.)

51. Iron latch or key, with bent and notched end. Length 5·37 in. Date uncertain. Hl. '12–88; 1 ft. 6 in. below surface. (Pls. 164, no. 51; 184, *o*, no. 3.)

52. Latch, with end turned over at right angles and hole for nail at other end. Cf. also no. 164 *infra*. Length 4·5 in. Mm. '15–54; west side of cell 2; 6 ft. 6 in. below surface. Cf. p. 363 (16) *supra*. (Pls. 164, no. 52; 184, *o*, no. 4.)

53. Rectangular iron lock-plate, with keyhole near middle and holes for nails at the four corners. Size 5·25 × 5·12 in. Sk. '15–668; Block K'; sq. 167·105'; stratum III. Cf. p. 180 *supra*; *A.S.R.* (1915), Pl. xvi, 3. (Pl. 164, no. 53.)

Class XVI. *Folding chair* (no. 54)

54. Iron folding chair, with hoof-feet of classical pattern, somewhat like those of a curule chair. Height 26 in. Presumably the seat was of cloth or carpet. Sk. '15–218; Block I; sq. 134–53'; stratum II. Cf. Dar. et Sag. *s.v.* 'Sella', and for a similar seat on coins of Kadphises I, cf. *Cat. of Coins in the Indian Museum*, vol. I, pt. I, p. 66, nos. 6–15, and Pl. xi, 3. Cf. p. 170 *supra*; *A.S.R.* (1915), Pl. ix, 5. (Pl. 170, *s*.)

Class XVII. *Axle of spinning wheel* (?) (no. 55)

55. Iron axle of a spinning wheel (?) with copper band attached. Sharply pointed at both ends. Length 9·2 in. Fifth century A.D. Mm. '15–268. Monastery, outside. 3 ft. below surface. Cf. p. 363 (17) *supra*; (Pl. 164, no. 55.)

Group B. ARMS AND ARMOUR

Class XVIII. *Swords and daggers* (nos. 56–62, *a*)

The iron swords found at Taxila belong exclusively to the first century A.D. They are straight, double-edged and pointed weapons, from 21 to 34·25 in. in length, and with a cross-guard attached to the blade at the base of the hilt. They thus resemble the straight double-edged swords found at Tinnevelly[1] and also the long *spatha* (σπάθη) used by the Roman auxiliaries. In the well-known statue of

[1] Cf. *A.S.R.* (1902–3), Pl. xxiii, 11–18.

Kanishka at Mathurā the king is shown grasping a long straight sword which seems to have been of this type (cf. Bachhofer, *Early Indian Sculpture*, Pl. LXXVI). Similar swords are also sometimes depicted in carvings of the Early Indian School (e.g. Cunningham, *Bharhut*, Pl. XXXII, 4), but the sword more usually depicted in these carvings as well as in the Gandhāra reliefs is a short weapon like the Roman *gladius*. Cf. Dar. et Sag. *s.v.* 'Gladius' and 'Spatha' and figs. 6522 and 6523. Strabo (XV, 67) and Arrian (*Ind.* 16) state that in the fourth century B.C. the Indian soldier carried a broadsword three cubits in length, and Arrian adds that he wielded it with both hands. No weapons of this description have been found.

Of the daggers, one only (no. 59) comes from the Bhir Mound and is referable to the third to second century B.C.; the others (nos. 60–2) are referable to the first century A.D. Except in the matter of length they closely resemble the swords and might well have answered to the term *semispathium*, applied to the Roman *pugio* in later Imperial times. The earlier specimen (no. 59) differs from the later ones in that the blade is straight-edged almost up to the point where it tapers abruptly, and that there is no cross-guard attached to it at the hilt.

Swords

56. Double-edged sword. Length including tang 34·25 in. The blade, which is straight-edged on both sides, tapers gradually to a point. In section it is lozenge-shaped and bevelled evenly on either side from the midrib to the edge. Attached to the heel of the blade is a cross-guard shod with bronze. Of the hilt only the tang remains. Sk. '14; Trench A626; stratum II. (Pl. 164, no. 56.)

57. Similar and of same date, but broken towards the point. Of high carbon steel. Present length 15 in. The blade is flatter than in the preceding specimen and without midribs. Lozenge-shaped guard; tang pierced with two holes for attachment of grip and pommel. Sk. '16–229; Block E'; sq. 71·76'; stratum II. Cf. p. 185, and Analysis Table, p. 536, no. 1 *supra*. (Pl. 164, no. 57.)

58. Similar to preceding and of same date. Length 21 in. Blade convex in section on both sides. Sk. '26–4,430; Block L; sq. 190·69'; stratum II. (Pl. 164, no. 58.)

58, *a*. Broken blade of steel sword. The blade, which tapers gradually towards the point, is without midribs. Length 9·9 in. Date uncertain, but probably fifth century A.D. For Brinell hardness, analysis and micro-examination, see Analysis Table, p. 536, no. 2. Chir Tope D, '21–3. Cf. p. 319 *supra*.

Dagger.

59. Double-edged straight-bladed dagger. Length 10·62 in. Tang broken at heel of blade. No cross-guard. The blade is lozenge-shaped in section with central ridge on both sides and of uniform width for a length of 8 in., when it tapers abruptly to the point. Bm. '14–296; stratum II. (Pl. 164, no. 59.)

59, *a*. Dagger blade. Length 9·6 in. Double-edged, tapering gradually towards the point. Tang for attachment of grip. For metal, see Analysis Table, p. 536, no. 4. Bm. '24–897; stratum IV.

60. Straight double-edged dagger. Length 7·75 in. The blade, which tapers slightly from heel to point, is lozenge-shaped in section with centre ridge on both faces. Tang broken. Rectangular guard of iron attached to heel of blade. First century A.D. Sk. '15–29; Block F'; sq. 86·74'; stratum II. Cf. p. 183 *supra*; *A.S.R.* (1915), p. 18, no. 28. (Pl. 164, no. 60.)

61. Similar to preceding. Length 11·5 in. Blade splayed slightly on heel; thinner guard; tang pierced for attachment of grip. Curved pommel riveted to end of tang. Sk. '15–95; Block F'; sq. 86·74'; stratum III. Cf. p. 183 *supra*. (Pl. 164, no. 61.)

62. Similar to no. 61, but tang not pierced. Length 11 in. First century A.D. Sk. '16–541; Block 1; sq. 14·65'; stratum II. Cf. p. 142 *supra*. (Pl. 164, no. 62.)

62, *a*. Dagger blade, double-edged without midrib. Much corroded. Length 9·4 in. Medium or low carbon material, severely decarburised on the surface. Sk. '12–96. First century A.D. Stratum II. Cf. Table of Analysis, p. 536, no. 3.

CLASS XIX. *Spears, javelins and butt* (nos. 63–71)

Taxila has yielded several types of these weapons, viz.: (*a*) four-sided pike-head with tang (no. 63), third to second century B.C.; (*b*) heavy iron javelin, resembling the ὑσσός of the *cataphracts* (nos. 64–6), third to second century B.C. (?) and first century A.D.; (*c*) leaf-blade spear-head with central ridge and tang (no. 68), first century A.D.; (*d*) socketed spear-head of dagger- or knife-blade pattern (nos. 69–70), first and fifth century A.D.; (*e*) socketed conical spear-butt (no. 71), fifth century A.D. Most interesting of these are the heavy javelins of type (*b*). The only specimen found in the Bhiṛ Mound has a three-flanged head; two from Sirkap, first century A.D., have four-flanged heads. The former may possibly be a stray, but in any case there seems little doubt that these metal javelins were a foreign weapon introduced either by the Bactrian Greeks or, more probably, by the Śakas or Parthians. Whether, like the Roman *pilum*, they were provided with a wooden butt or handle there is no evidence to show.

Type *a*:

63. Spike-shaped spear-head of iron, four-sided with tang for fixing into wooden shaft. Length 7·5 in. Roughly made, but of great penetrating power against plate or mail armour. Third to second century B.C. Bm. '19–505; sq. 29·56'; stratum I. Cf. Analysis Table, p. 536, no. 10. (Pl. 164, no. 63.)

Type *b*:

64. Heavy iron javelin with shaft and head in one piece. Length 38·75 in., but the shaft is broken. The head is three-flanged, like the arrow-heads of type *c*, below. Third to second century B.C., unless, as seems probable, it is a stray of later date. Bm.; stratum II.

65. Similar to preceding, but with four-flanged head. Shaft broken. Length 25 in. Sk. '22–828; Fifth Street (west); sq. 53·85'; stratum II. First century A.D. (Pl. 164, no. 65.)

66. Similar to no. 65 and from same findspot. Shaft broken. Length 22 in.; stratum II. (Pl. 164, no. 66.)

67. Javelin-head of narrow leaf pattern, with shaft of same metal; broken. Length 6·5 in. This may belong to the same class of heavy javelin as the three preceding specimens, but we cannot be sure on the point as only 3 in. of the shaft are preserved. It is referable to the fifth century A.D. Mm. '15–42; mon., north steps; 5 ft. below surface. Cf. p. 363 (18) *supra*. (Pl. 164, no. 67.)

Type *c*:

68. Leaf-shaped spear-head, with central ribbing on both sides; tang broken. Length 8·25 in. Sk. '26–1,213; Block J; sq. 145·57'; stratum II. First century A.D. Cf. p. 171 *supra*. (Pl. 164, no. 68.)

Type *d*:

69. Dagger-shaped spear-head with hollow socket (broken). Length 7·12 in. Sk. '15–487; Block G; sq. 114·49'; stratum II. First century A.D. Cf. p. 169 *supra*. (Pl. 164, no. 69.)

70. Socketed spear-head of knife-blade pattern. Length 11·87 in. Fifth century A.D. Jn. '16–273; cell no. 3; 1 ft. below surface. Cf. p. 385 *supra*. (Pl. 164, no. 70.)

Type *e*:

71. Socketed conical spear-butt, with horizontal rim. Length 6 in. Mm. '15–E64; fifth century A.D. Cf. p. 363 (19) *supra*. (Pl. 164, no. 71.)

CLASS XX. *Arrow-heads* (nos. 72–89)

Without exception, all the arrow-heads found at Taxila were intended for shafts made of reeds, not of solid wood, and were provided accordingly with long tangs instead of hollow sockets.[1] But a peculiarity of nearly all the earlier specimens is that there is a considerable length of solid shank intervening between the head and the tang. The explanation of this unusual feature seems to be that this type of arrow-head is a compromise between the socketed and tanged varieties. Whoever its authors may have been, they had evidently been accustomed to socketed piles designed for solid wooden shafts, and when, for some reason or other, reeds were substituted for the solid wood, the old form of pile was retained and a thin tang added behind the shank for insertion into the reed, the shank itself being made solid instead of hollow. Since the reed arrow was in general use among Iranian and Central Asian[2] as well as Indian peoples, it is reasonable to infer that these 'double-tanged' heads, as we may call them, were an adaptation of a Western socketed type rather than an Eastern one, and, this being so, it seems not improbable that they were introduced at Taxila by the Bactrian Greeks. In support of this surmise it is to be noted that the earliest specimens come from the uppermost stratum of the Bhiṛ Mound and are therefore contemporary with the advent of the Bactrian Greeks. No iron arrow-heads of any kind have been found in the earlier settlements on this site,[3] although they must, of course, have been in use.

Apart from their double tang, the arrow-heads from the Bhiṛ Mound belong to five different types, viz.: (*a*) flat, with lozenge cross-section; (*b*) with triangular cross-section; (*c*) with square cross-section; (*d*) with rhombic cross-section; (*e*) barbed. With the exception of (*b*) all these types recur in the later settlements in Sirkap, but in the Śaka-Parthian period (first century B.C. to first century A.D.) two new types also make their appearance, viz.: (*f*) conical, and (*g*) three-bladed. The older types of arrow-heads also tend to become larger, e.g. nos. 77, 78, 84. In the fifth century A.D. an eighth type (*h*) with four barbed blades was introduced.[4]

[1] Indian arrows seem to have been usually made of the *śara* reed, but arrows made of bambu (*veṇu*) and *śalākā* (a hard wood) are also mentioned in Indian literature, e.g. Kauṭilya, *Arthaśāstra*, bk. II, ch. 13; *Agni Purāṇa*, 245, 12.

[2] Cf. *Excavations at Dura-Europos*, 6th season (1932–3), p. 454, and notes 48 and 49; Stein, *Innermost Asia*, I, pp. 95–6; III, Pls. VI, XXVI, XLVII; *Serindia*, IV, Pls. LI, LIII, etc. The Indian reed-arrow was from two to three cubits in length. Cf. Q. Curtius, VIII, 9; Arrian, *Ind.* c. 16; Strabo, XV, 66.

[3] For a double-tanged arrow-head with three blades from Turfan (Kara-khōja), see Stein, *op. cit.* II, p. 608, Kao IV, 01 and vol. III, Pl. LXXI. The author, however, does not attempt to explain the peculiarity of the type.

[4] Ancient Indian literature refers to arrow-heads of many shapes, e.g. *ardhacandra* ('half-moon'), *kshurapra* (with a razor-edge), *sūcīmukha* (needle-shaped), *vatsa-danta* (like a calf's tooth), etc. Cf. *J.A.O.S.* XIII, pp. 275–81.

The three-bladed type (*g*) seems to have been specially favoured by the Śakas,[1] to whom its introduction at Taxila was no doubt due. It is noteworthy, however, that many specimens of this three-bladed, as well as of the four-bladed type, have been found along with specimens of (*a*) and (*d*) types at the Dharmarājikā and other monasteries destroyed by the White Huns in the fifth century A.D. It is a reasonable surmise that the former weapons were used by the attacking Huns; the latter, which were traditional at Taxila, by the defending monks, though the three-bladed type, which had long before been introduced by the Śakas, may also have been used by the defenders.

For arrow-heads made of bone and ivory, see below, 'Bone and Ivory', ch. 32, Class XVIII, nos. 105–14. No arrow-heads made of copper or bronze or horn have been found at Taxila.

Type *a*:

72. Arrow-head, leaf-shaped, with lozenge cross-section and double tang. Length 2·62 in. Point and tang broken. Bm. '21–150; sq. 34·47′; stratum II. (Pl. 165, no. 72.)

73. Similar but triangular in shape. Length 3·25 in. Bm. '21–1,617; sq. 48·124′; stratum II. (Pls. 165, no. 73; 206, no. 47.)

74. Similar to no. 73, but with longer shank and slightly barbed; tang partly broken. Length 2·87 in. Bm. '21–873; sq. 66·89′; stratum II. (Pls. 165, no. 74; 206, no. 40.)

75. Similar, but tang broken. Length 1·87 in. Bm. '21–1,583; sq. 43·123′; stratum II. (Pl. 165, no. 75.)

76. Similar. Length 1·12 in. Bm. '20–15; sq. 35·62′; stratum II. (Pl. 165, no. 76.)

77. Similar, with knife-blade head; tang partly broken. Length 3·87 in. Sk. '26–357; Block I; sq. 133·65′; stratum II. Cf. p. 171 *supra*. (Pls. 165, no. 77; 206, no. 48.)

78. Similar, with triangular blade like no. 75. Length 2·87 in. Sk. '16–788; Block 1; sq. 13·58′; stratum I. Cf. p. 142 *supra*. (Pls. 165, no. 78; 206, no. 46.)

Many more arrow-heads of this type, dating probably from the period of the Hun invasions in the fifth century A.D., were found at the Dharmarājikā monastery, particularly in the debris of courts A, H and J.

Type *b*:

79. Arrow-head with triangular cross-section and double tang. Length 4·5 in. Bm. '21–1,491; spoil earth from stratum II. (Pl. 165, no. 79.)

Type *c*:

80. Arrow-head with square cross-section; single tang broken. Length 2·25 in. Bm. '21–873, *b*; sq. 66·89′; stratum II. Third to second century B.C. (Pl. 165, no. 80.)

81. Similar. Length 3·5 in. Bm. '14–659; sq. 67·76′; stratum II. (Pls. 165, no. 81; 206, no. 49.)

Type *d*:

82. Arrow-head with rhombic cross-section, double-tanged. Length 1·62 in., but tang broken. Bm. '20–569; sq. 12·41′; stratum II. (Pl. 165, no. 82.)

83. Similar; tang broken. Length 2·25 in. Bm. '20–1,380; sq. 20·44′; stratum II. (Pls. 165, no. 83; 206, no. 39.)

[1] Cf. Flinders Petrie, *Tools and Weapons*, p. 34, § 89. The three-bladed arrow-head did not find its way to Egypt until after the Scythian invasion of Syria (624–596 B.C.). Its origin appears to have been Graeco-Scythian.

84. Similar, double tanged. Length 2·87 in., but tang broken. Sk. '13–1,482; Block E; sq. 77·68'; stratum IV. First century B.C. (Pls. 165, no. 84; 206, no. 45.)

Type *e*:

85. Double-tanged arrow-head with barbed and ribbed blade. Length 3 in. Bm. '21–298; sq. 10·61'; stratum II. (Pls. 165, no. 85; 206, no. 50.)

86. Similar, but with single tang. Length 6·87 in. Sk. '17–Kun. 135; north-east veranda; 5 ft. below surface. Probably fifth century A.D. Cf. p. 352 *supra*. (Pls. 165, no. 86; 206, no. 44.)

Type *f*:

87. Conical arrow-head with circular cross-section. Tang broken. Length 2·12 in. Sk. '15–303; Block I; sq. 129·43'; stratum II. First century A.D. Cf. p. 171. (Pl. 165, no. 87.)

Type *g*:

88. Three-bladed arrow-head, with plain tang which is broken. Length 2 in. Sk. '14–1,632; Block D'; sq. 62·75'; stratum III. First century B.C. to first century A.D. A number of arrow-heads of this type have been found at the Dharmarājikā monastery, particularly in the courts A, J, H, where they were probably used in the fifth century A.D. by the White Huns. Cf. pp. 278, 547–8 *supra*. (Pls. 165, no. 88; 206, no. 42.)

88, *a*. Three-bladed arrow-head with plain tang. Length 4·1 in. First century A.D. Sk. '26–2,847; stratum I. Of medium or low carbon steel. Cf. Analysis Table, p. 536, no. 9.

Type *h*:

89. Four-bladed barbed arrow-head with short shank and long tang. Length 5 in. Sk. '14–Kun. 2,412; from the Kunāla monastery. A number of arrow-heads of this type have also been found at the Mohṛā Morādu monastery (fifth century), where, like the preceding type (*g*), they were probably used by the attacking Huns. Cf. p. 352 *supra*. (Pls. 165, no. 89; 206, no. 51.)

CLASS XXI. *Armour, helmet and shield bosses* (nos. 90–5)

90. Eighteen armour plates of iron much corroded and adhering together, along with three links of an iron chain. Size about 10 × 8·5 × ·08 in. thick. Sk. '28–1,782; Block F'; sq. 85·89'; stratum II. The plates are curved to fit the body and are of different sizes and patterns; some of their edges are straight, others curvilinear, while some are provided with hinges or pierced with small holes for lacing. The plates are so corroded that there is no possibility of separating them, but enough is visible to show that each was made up of several strips of metal, probably hammered together. It is not possible to determine for certain if they were riveted. Rectangular armour plates, either of iron or of lacquered leather, are figured on the skirts of soldiers in certain Gandhāra reliefs (cf. Foucher, *L'Art gréco-bouddhique du Gandhāra*, p. 405, figs. 202, 204), but the size and weight of these plates from Sirkap suggests that they served as armour for horses or even for camels[1] or elephants, rather than for men. Horses and riders clad in mail or plate armour were from early times a feature of the Persian, Seleucid, Parthian and Sarmatian armies. A horseman with an armoured apron protecting his legs is figured on coins of the Śaka satrap, Kharahostes (*B.M. Cat. of Greek and Scythic coins of Bactria and India*, Pl. XXIII, 6). About the second century A.D. the idea was also copied by the Romans, to whom this class of heavy cavalry was known as the *cataphracti* (κατάφρακτοι).[1] Cf. Xenophon, *Anab.* I, 8, 6–7; *Cyropaedia*, VI, 4, 1; VII, 1, 2; VIII, 8, 11; Tit. Liv. XXIV, 48; XXXVII, 40; Polyb. 31, 3, 9; Plut.

[1] The Parthian camelry, which was also heavily armed, may have been copied from the Roman dromedarii. The idea of the *cataphract* also spread eastward to China as early, probably, as the first century B.C. Cf. Laufer, *Chinese Clay Figures* (1914), p. 217.

but no examples of it have been found at Taxila. Cheek-bars of horn and bone have also been found at Taxila (ch. 32, nos. 115–17).

96. Snaffle-bit, jointed in middle, with cheek-rings made in one piece with each section of the bar. The bar is plain. Length 8·62 in. Sk. '14–1,593; Block C'; sq. 46·74'; stratum II. Cf. p. 193 *supra*. (Pls. 165, no. 96; 205, *c*.)

97. Similar; length 7·5 in. Sk. '14–384; Block K; sq. 154–47'; stratum II. Cf. p. 176 *supra*. (Pl. 165, no. 97.)

98. Similar; length 7·87 in. Sk. '26–21; Block J; sq. 143·69'; stratum II. Cf. p. 171 *supra*. (Pl. 165, no. 98.)

99. An S-shaped cheek-bar of horse-bridle with two holes for rein-strap. The cheek-bar was attached to the bit, in the manner illustrated in Pl. 205, *b*, which shows a horn cheek-bar and bit from Central Asia. Length 5·5 in. Sk. '14; Trench A627. For S-shaped bars, cf. Flinders Petrie, *op. cit.* p. 56, §158 and Pl. LXX, 19, 20, and Lefebure des Noëttes, *L'Attelage, Le Cheval de Selle*, figs. 247 and 248 (Scythian and Roman), and for earlier and more decorative specimens in bronze from Luristān, *Illus. London News* (6 Sept. 1930), p. 389, figs. 3–10. (Pl. 170, *o*.)

100, *a*, *b*. Two cheek-bars similar to above, but slightly curved instead of being S-shaped. Length 6·75 in. and 7·25 in. respectively. Sk. '14–2,276; Block E; sq. 69·66'; stratum III. Cf. p. 161 (16) *supra*. (Pls. 165, no. 100, *a*, *b*; 185, *d*.)

CLASS XXIII. *Elephant-goads* (nos. 101, 102)

Somewhat similar implements to those described below are designated 'fire-hooks' by Flinders Petrie and said to have been used in Egypt for raking the charcoal in the braziers (cf. Flinders Petrie, *Tools and Weapons*, Pl. LXXI, 50, 51). There is no reason, however, to suppose that the following implements were other than the familiar *aṅkuśa* figured so often in early Indian sculptures. It is noteworthy that precisely the same type of elephant-goad was used in North Africa. See, for example, the Carthaginian coin in the Cabinet de France, illustrated in Dar. et Sag. *s.v.* 'Elephas', fig. 2621.

101. Elephant-goad (Skr. *aṅkuśa*) with sharp point at end and curved hook at side. Length 25·5 in. Bm. '24–212; sq. 7·61'; stratum II. (Pl. 170, *v*.)

102. Similar. Length 5·5 in. Sk. '22–611; Block C'; sq. 51·90'; stratum III. First century B.C. to first century A.D. Cf. p. 193 *supra*. (Pl. 170, *u*.)

GROUP D. CARPENTER'S AND BLACKSMITH'S TOOLS, ETC.

CLASS XXIV. *Axes* (nos. 103–11)

All the iron axes from Taxila belong to the socketed class. One only (no. 103) comes from the Bhir Mound and is referable to the third to second century B.C.; the rest come from Sirkap and date from the first century A.D. The commonest is a true iron type (*a*) with a wide splay and thin blade, such as is frequently met with at Pompeii and on other Roman sites at this period. Cf. Flinders Petrie, *Tools and Weapons*, p. 11 and Pl. IX, 26–36. In the Sirkap specimens the droop of the blade tends to become more marked, giving the axe a broader crescentic edge and enabling it to make a longer cut. In another type (*b*) the blade is prolonged in both directions,

so as to give a still longer cutting edge, as in Flinders Petrie, *op. cit.* Pl. x, nos. 49–53, 65, 68, 73. In a third type (*c*) the socket is projected up and down the back of the handle in order to meet the strain imposed on it, particularly in such operations as the cleaving of wood. Cf. Flinders Petrie, *op. cit.* Pl. XI, nos. 101, 106, 107, 114, 115.

Type *a*:

103. Socketed axe, with slightly drooping blade. Length 4·62 in. Bm. '21–650; sq. 90·79'; stratum II. (Pl. 166, no. 103.)

104. Similar, with short irregular blade and unusually large socket for handle. Length 3·68 in. First century A.D. Sk. '20–240; Block D'; sq. 54·90'; stratum II. Cf. p. 190 *supra*. (Pl. 166, no. 104.)

105. Similar, with longer and more drooping blade. Length 6·87 in. First century A.D. Sk. '15–732; Block H; sq. 125·67'; stratum II. Cf. *A.S.R.* (1915), p. 18, no. 6; p. 170 *supra*. (Pl. 166, no. 105.)

106. Similar. Droop of blade accentuated. Length 5·25 in. First century A.D. Sk. '22–867; Block E'; sq. 73·83'; stratum II. Cf. p. 185 *supra*. (Pl. 166, no. 106.)

107. Similar, and of same date as preceding. Length 4·87 in. Sk. '24–98; Block C; sq. 47·49'; stratum II. (Pl. 166, no. 107.)

108. Similar and of same date. Length 5·62 in. Sk. '26–1,093; Block J; sq. 146·59'; stratum II. Cf. p. 171 *supra*. (Pl. 166, no. 108.)

Type *b*:

109. Socketed axe, with blade projected in both directions. Length 5·75 in. First century A.D. Sk. '24–98; Block C; sq. 47·49'; stratum II. Analysis Table, p. 536, no. 6 *supra*. (Pl. 166, no. 109.)

Type *c*:

110. Axe, with drooping blade and back of socket projected up and down handle. Length 6·93 in. First century A.D. Sk. '20–252; Block B'; sq. 33·86'; stratum II. Cf. p. 194 *supra*. (Pl. 166, no. 110.)

111. Similar and of same date. Length 5·25 in. Sk. '26–1,259; Block J; sq. 151·58'; stratum I. Cf. p. 171 *supra*. (Pl. 166, no. 111.)

CLASS XXV. *Adzes* (nos. 112–17)

The earliest type (*a*) of carpenter's adze from the Bhiṛ Mound (third to second century B.C.) has a thin rounded top and thick sharply tapering blade. Apparently it was fixed to the handle by means of an iron band and wedges, with the top projecting at the back of the band, as in the example, said to have come from Abydos, which is figured in Flinders Petrie, *op. cit.* Pl. XVIII, fig. 132. In the later Sirkap examples of the first century A.D. (type *b*) the blade is relatively broader below and thicker above, with the top squared off for insertion into a metal sheath, which covered it behind as well as above and at the sides, the sheath itself being nailed to the handle. In a still later example of the fifth century A.D. from Jauliāñ (type *c*) the blade is bent, as in the modern Indian adze, to facilitate an even cutting stroke and is furnished with a socket-hole for the handle.

Type *a*:

112. Carpenter's adze of iron with thin rounded top and thick sharply tapering blade. Length 7·25 in. *c.* late fourth century B.C. Bm. '20–1,412; sq. 28·27'; stratum III. (Pl. 166, no. 112.)

113. Similar. Length 5·87 in. Bm. '21–842; sq. 66·87'; stratum II. (Pl. 166, no. 113.)

Type *b*:

114. Carpenter's adze. Length 5·25 in. The blade is broader below than the preceding examples, but thicker above and squared off at the top for insertion in a metal sheath. The latter encases the blade at the back as well as above and at the sides, and was fixed to the wooden handle by two nails driven through it from side to side. First century A.D. Cf. *A.S.R.* (1915), Pl. VII, 3. Sk. '15–221; Block I; sq. 134·54'; stratum I. Cf. p. 171 *supra*. (Pl. 166, no. 114.)

115. Similar and of about same date. Length 6 in. *A.S.R.* (1914), Pl. XXV, 46. Sk. '14–1,068; Main Street; sq. 83·72'; stratum III. (Pl. 166, no. 115.)

116. Similar, but without sheath for head. Length 5·75 in. Sk. '20–76; east of palace; stratum II. Cf. p. 176; Analysis Table, p. 536, no. 5 *supra*. (Pl. 166, no. 116.)

Type *c*:

117. Socketed adze-head with bent, wryneck blade, as in the modern Indian adze, to facilitate the trimming of the wood surface. Length 5·87 in. Fifth century A.D. Jn. '16–F48; mon. court. Cf. p. 385 *supra*; *Jn. Mem.* Pl. XXVIII, *g*. (Pl. 166, no. 117.)

CLASS XXVI. *Chisels* (nos. 118–21, *c*)

Iron chisels are few in number. The earliest example from the Bhiṛ Mound (third to second century B.C.) is a bare metal, square bar tool, with splayed single-slope cutting edge, intended no doubt for mortising work. Of the chisels from Sirkap (second century B.C. and first century A.D.), some (type *b*) are bare metal, round bar tools for stone-cutting; others (type *e*) are bare metal round bar carpenter's chisels, tapering gradually from the top downwards to a splayed crescentic edge.

Type *a*:

118. Bare metal chisel for mortising, approximately square in section, with single slope and slightly splayed crescentic cutting edge. Length 5 in. Bm. '21–636; sq. 132·94'; stratum II. (Pl. 166, no. 118.)

Type *b*:

119. Bare metal, round bar chisel, with double slope and straight cutting edge, for stone-cutting. Length 5·75 in. Sk. '22–920; Block 1'; sq. 12·92'; stratum V. Second century B.C. (Pl. 166, no. 119.)

120. Similar. Length 5·25 in. First century A.D. Sk. '16–1,124; Block A'; sq. 21·74'; stratum II. Cf. p. 195; Analysis Table, p. 536, no. 7 *supra*. (Pl. 166, no. 120.)

121. Similar; head much hammered. Length 3·87 in. First century A.D. Sk. '14; Trench A635; stratum II. (Pl. 166, no. 121.)

Type *c*:

121, *a*. Bare metal, round bar carpenter's chisel tapering gradually from top, with broad crescentic cutting edge. Length 7 in. First century A.D. Sk. '17–140; Main Street; sq. 96·73'; stratum IV. (Pl. 166, no. 121, *a*.)

121, *b*. Similar and of same date. Length 5·87 in. Sk. '24–727; Block C; sq. 45·44'; stratum III. (Pl. 166, no. 121, *b*.)

121, *c*. Similar and of same date. Length 6·62 in. Sk. '15–732; Block H; sq. 125·67'; stratum II. Cf. p. 170 *supra*. (Pl. 166, no. 121, *c*.)

CLASS XXVII. *Knives and chopper* (?) (nos. 122–8)

Iron knives from the Bhiṛ Mound (nos. 122–3) are of the straight-backed, straight-edged type, with a tang for fixing into the handle. Later specimens from Sirkap (nos. 124–6) have the same tang and straight back, but the edge is convex. No. 127 (first century A.D.) is a fragment of what appears to have been a chopper. No. 128 of the fifth century A.D.—a double-edged blade without tang—may have served as either a knife or a dagger.

122. Straight-backed, straight-edged knife, with tang for handle. Length 4·06 in. Bm. '24–218; sq. 7·59'; stratum II. (Pl. 166, no. 122.)

123. Similar, but with slightly convex back. The hollow edge is the result of sharpening. Length 4·37 in. Bm. '20–1,183; sq. 27·27'; stratum III. (Pl. 166, no. 123.)

124. Similar but with convex edge. Length 4·75 in. First century B.C. to first century A.D. Sk. '22–611/2; Block C'; sq. 51·90'; stratum III. Cf. p. 193 *supra*. (Pl. 166, no. 124.)

125. Similar and of same date. Damaged. Length 3·25 in. Sk. '13–103; Block K; sq. 179·47'; stratum III. Cf. p. 170 *supra*. (Pl. 166, no. 125.)

126. Similar. First century A.D. Length 5 in. Sk. '15–294; Block I; sq. 133·54'; stratum II. Cf. p. 171; Analysis Table, p. 536, no. 8 *supra*. (Pl. 166, no. 126.)

127. Fragment of chopper (?) with sheath at corner for handle. Length 2·87 in. Sk. '14; Trench A632; stratum II. (Pl. 166, no. 127.)

128. Knife or dagger, two-edged, without tang, but with two nails at base of blade for fixing handle. Length 4·62 in. Fifth century A.D. Mm. '15–194; cell 9; 7 ft. below surface. Cf. p. 363 (21) *supra*. (Pl. 166, no. 128.)

CLASS XXVIII. *Saw* (no. 129)

129. Fragment of straight-edged, straight-backed saw. Length 4·25 in. First century A.D. The metal is too corroded to determine whether there was any rake in the teeth. Sk. '15–461; Block E; sq. 77·50'; stratum II. Cf. p. 161, n. 1 *supra*; *A.S.R.* (1915), Pl. VII, 9. (Pl. 167, no. 129.)

CLASS XXIX. *Tongs, pliers and tweezers* (nos. 130–4)

Fire-tongs of all sizes, similar in form to nos. 130 and 131 below, were common in the Mediterranean area from the Roman period onwards (cf. Flinders Petrie, *op. cit.* p. 41). Whether this type of tongs was evolved independently in India is not known. The small pliers (no. 132) are of a pattern which is common enough to-day, but rare, if not unique, among ancient tools of this class. On the other hand, the pattern of the tweezers (nos. 133, 134) could be paralleled by countless examples from the Graeco-Roman world.

130. Pair of tongs. Length 4·87 in. Possibly used by a goldsmith or silversmith; they are too small for use as ordinary fire-tongs. Bm. '15–298; stratum II. (Pl. 167, no. 130.)

131. Similar, but larger. Length 10·25 in. First century A.D. Sk. '14; Trench A 638; stratum II. (Pl. 167, no. 131.)

132. Pair of pliers, of modern-looking pattern, with bow handles. Length 3·75 in. First century A.D. Sk. '26–4,429/11; Block L; sq. 189·70'; stratum II. Cf. p. 178 *supra*. (Pls. 167, no. 132; 205, *d*.)

133. Half of tweezers incurved and broad at the point; probably used for depilation. Length 3·5 in. First century A.D. Sk. '14–389; Block K; sq. 159·57'; stratum II. Cf. p. 176 *supra*. (Pl. 167, no. 133.)

134. Pair of bow-legged tweezers with fine points, probably used for extraction of thorns or for handling small objects. Length 6·12 in. Probably fifth century A.D. Gr. '27–215 D; room 10; 6 ft. 2 in. below surface. (Pl. 167, no. 134.)

CLASS XXX. *Scissors* (no. 135)

135. Handle and part of one blade of pair of scissors. Length 3·31 in. First century A.D. Sk. '13–124; stratum I. Scissors of this type, worked by two separate fingers, are not known to occur in the Graeco-Roman world before the first century A.D. (Flinders Petrie, *op. cit.* p. 48, para. 135). There is no evidence of their having been independently evolved in India. (Pl. 167, no. 135.)

CLASS XXXI. *Hammers, adze-hammer and picks* (nos. 136–42)

For other hammers, cf. 'Copper and Bronze', ch. 28, nos. 373 and 374, *a–f*. All the tools in this class date from the first century A.D. The square, flat-faced hammers (nos. 136–8) were probably used by blacksmiths; the larger round-faced hammer (no. 139) and the single and double picks by stonemasons; and the small adze-hammer (no. 140) for carpentry.

136. Socketed hammer, square in section and flat-headed. Length 3·62 in. First century A.D. Sk. '14–2,049; spoil earth. (Pl. 167, no. 136.)

137. Similar, with socket-hole to one side. Length 4·37 in. First century A.D. Sk. '20–74; east of palace; stratum II. Cf. p. 176 *supra*. (Pl. 167, no. 137.)

138. Similar to no. 136, but shorter and thicker. Length 4·37 in. First century A.D. Sk. '26–4,429/4; Block L; sq. 189·70'; stratum II. Cf. p. 178 *supra*. (Pl. 167, no. 138.)

139. Heavy hammer, approximately square in section with rounded face. Length 6·5 in. First century A.D. Sk. '20–74; east of palace; stratum II. Cf. p. 176 *supra*. (Pl. 167, no. 139.)

140. Small adze-hammer. Length 5 in. First century A.D. Sk. '26–4,429/5; Block L; sq. 189·70'; stratum II. Cf. Flinders Petrie, *op. cit.* Pl. XIV, 73. Cf. p. 178 *supra*. (Pl. 167, no. 140.)

141, *a–c*. Three single-head socketed picks such as might have been used for stone dressing. Length 5–6·12 in. First century A.D. From same findspot as preceding. Cf. p. 178 *supra*. (Pl. 167, no. 141.)

142. Double-headed socketed pick for stone-dressing. Length 5·12 in. First century A.D. Sk. '24–94; Block C; sq. 47·49'; stratum II. Cf. Flinders Petrie, *op. cit.* Pl. XIV, 71, 72 (from Pompeii). (Pl. 167, no. 142.)

CLASS XXXII. *Anvils or beak-irons* (nos. 143–9)

These implements are of small size and used for light metal-work only. The earliest kind, of the third to second century B.C., are square with four sharply pointed legs for fixing into a wooden block. In later ones of the same type (nos. 145, 146) belonging to the first century A.D. the legs are wider and not so sharp. For Graeco-Roman examples of this type of anvil, cf. Dar. et Sag. *s.v.* 'Caelatura'.

fig. 954 and fn. 156; *s.v.* 'Incus', fig. 4036. A second type of later beak-iron, also of the first century A.D., consists of a solid square bar, tapering somewhat downwards but flat at the bottom and without any spike for driving into the wood block.

Stool type *a*:

143. Small anvil or beak-iron, of stool type, for light metal-work. Square in plan with a pointed leg at each corner for fixing into wooden block. 2·87 × 2·87 in. Bm. '19–1,773; sq. 7·55'; stratum II. (Pl. 167, no. 143.)

144. Similar, and of same size and age. Bm. '24–499; sq. 32·62'; stratum II.

145. Similar, but legs shorter and broader. Size 3 × 3 in. First century A.D. Sk. '19–131; Block 1'; sq. 11·110'; stratum II. Cf. p. 196 *supra*. (Pl. 167, no. 145.)

146. Similar to no. 145 and of same age. Size 2·75 × 2·25 in. Sk. '26–2,327; Block G; sq. 96·46'; stratum II. Cf. p. 169 *supra*. (Pl. 167, no. 146.)

Solid bar type *b*:

147. Anvil of solid bar type, square in section with splayed top. Height 6·5 in. First century A.D. Sk. '27–1,549; Block D'; sq. 61·118'; stratum III. Cf. p. 190 *supra*. (Pls. 167, no. 147; 205, *d*.)

148. Similar to preceding and of same age. Height 6·37 in. Sk. '26–4,429/86; Block L; sq. 189·70'; stratum II.

149. Similar but smaller and with more regular taper downwards. Same age. Height 3·25 in. Sk. '28–264; Block A'; sq. 26·93'; stratum II. Cf. p. 195 *supra*. (Pl. 167, no. 149.)

CLASS XXXIII. *Nails, nail-bosses and hooks* (nos. 150–66)

A curious type of nail (*a*) found only in the Bhiṛ Mound and dating from the third to second century B.C. has a broad flat head of varying shape with a small round hole perforated from side to side at the upper edge. The purpose of the hole is not apparent; it might be intended to take a wire or string. Of nails with heads turned over at right angles to the shank (type *b*) no. 152 is of the third to second century B.C.; no. 153 of the fifth century A.D. Nos. 154–6 with heavy boss heads all come from Sirkap and date from the first century A.D. They were probably used for studding door-fronts but might also have served as beak-irons for light metal-work. Beak-irons with single spikes, like these, for fixing into a wooden block, were in use among Roman artificers (cf. Dar. et Sag. *s.v.* 'Incus', fig. 4037). The ornamental door-bosses of iron, held in place by a centre nail (nos. 157–62), come partly from strata of the first century A.D. in Sirkap, partly from the fifth-century monasteries at Jauliāñ and the Dharmarājikā. Such bosses were more commonly made of copper or bronze than of iron (cf. 'Copper and Bronze', ch. 28, nos. 408–12). Hooks (nos. 163–6) are of two types, viz.: (*a*) a rigid hook driven into the woodwork of the ceiling, for hanging things on; (*b*) movable hooks used in conjunction with staples as door-fasteners.

Type *a*:

Nails 150, *a*, *b*. Two nails, with flat shanks and broad flat heads projecting to one side of the shank. At its upper edge the head is perforated from side to side by a small round hole. Length 4·87 and 4·45 in. respectively. Third to second century B.C. Bm. '21–144; sq. 11·51'; stratum II. (Pl. 167, no. 150, *a*, *b*.)

151, *a–g*. Seven nails, with flattened shanks, splayed at the head and tapering gradually to the point. In the middle of the head is a small hole perforated from side to side. Length 6·25–8·5 in. Bm. '21–82; sq. 10·52'; stratum II. (Pl. 167, no. 151, *a*, *b*.)

Type *b*:

152. Nail, with flattened tapering shank and head projecting in all directions at right angles to the shank. Length 3·5 in. Third to second century B.C. Bm. '20–586; sq. 25·26'; stratum II. (Pl. 167, no. 152.)

153. Similar, but longer and with square shank and head projecting on two sides only. Length 12·5 in. Fifth century A.D. Mm. '15–F36. Cf. p. 363 (22) *supra*. (Pl. 167, no. 153.)

Type *c*:

154. Iron nail with heavy rounded boss head. Length 4·5 in. This and the two following specimens were probably used for studding door-fronts; but they might also have been used as beak-irons for light metal-work. First century A.D. Sk. '24–170; Block B; sq. 36·60'; stratum I. (Pl. 167, no. 154.)

155. Similar and of same age, but with flattened head, of roughly hexagonal shape. Length 4·62 in. Sk. '24–15; Block B; sq. 35·51'; stratum I. (Pl. 167, no. 155.)

156. Similar to no. 155 and of same age. Length 7·62 in. Sk. '28–1,976; Block G'; sq. 106·79'; stratum II. (Pl. 167, no. 156.)

157. Iron door-boss, saucer-shaped with raised dome in centre. Diam. 2·81 in. Sk. '26–3,081; Block G; sq. 103·50'; stratum III. Centre nail missing. Cf. p. 169 *supra*. (Pl. 168, no. 157.) Ornamental door-bosses

158. Similar, and of same age. Diam. 2·75 in. Sk. '19–1,460; Block D'; sq. 59·104'; stratum II. Cf. p. 190 *supra*. (Pl. 168, no. 158.)

159. Helmet-shaped door-boss, with long boss-headed nail through centre. Diam. 1·62. Fifth century A.D. Jn. '16–F42; mon. court. Cf. p. 385 *supra*. (Pl. 168, no. 159.)

160. Two square door-bosses, with nails as in preceding. Size 3 in. square. Fifth century A.D. Jn. '16–F46; mon. court. Cf. p. 385 *supra*. (Pl. 168, no. 160.)

161. Lotus-shaped boss of copper with iron centre. Length 2·12 in. Probably fifth century A.D. Dh. '13–963; east of K; 1 ft. below surface. (Pl. 168, no. 161.)

162. Round door-boss, like inverted saucer, with four petals radiating from centre depression to rim. Diam. 4·5 in. First century A.D. Sk. '17–108; Block F'; sq. 93·75'; stratum II. Cf. p. 183 *supra*. (Pl. 168, no. 162.)

163. Hook, with serpentine head at right angles to shank. Length 5·12 in. Evidently intended to be driven into the ceiling and used for hanging things on. Fifth century A.D. Mm. '15–19; mon., south-west corner; 3 ft. below surface. Cf. p. 363 (23) *supra*. (Pl. 168, no. 163.) Hooks

164. Movable hook with loop head (broken), used probably as a door-fastener like no. 52. Length 2·87 in. Fifth century A.D. Sk. '17–Kun. 90; south veranda; 3 ft. below surface. Cf. p. 352 *supra*. (Pl. 168, no. 164.)

165, *a–c*. Similar and of same date, but with straight shanks. Length 3·62–4 in. Mm. '15–E31. Cf. p. 363 (24) *supra*.

166. Similar, but of less solid make and irregular shape. Length 8·25 in. Fifth century A.D. Jn. '16–F41; mon. court. Cf. p. 385 *supra*. (Pl. 168, no. 166.)

CLASS XXXIV. *Clamps and staples* (nos. 167–76)

Objects in this class date from the first and fifth centuries A.D. The clamps take the form either of a single straight strip of metal nailed to the object, or of two bands on opposite sides of the object with nails uniting them between, or of a single band of metal bent round the object and secured or not by a nail. The staples

are made of iron wire doubled, with a loop at the middle and with the two ends pointed for driving into the wood.

Type *a*:

Clamps 167. Clamp, consisting of straight flat strip of metal, pierced by four long nails. Length 19·75 in. Length of nails about 14 in. First century A.D. Sk. '14–978; north of apsidal temple; debris. (Pl. 168, no. 167.)

168. Similar, with two nails; same age and from same spot. Length 4·25 in. (Pl. 168, no. 168.)

169. Nine iron clamps with nails intact; similar to no. 168. Length 3–7·5 in. Fifth century A.D. Mm. '15–E1. Cf. p. 363 (25) *supra*. (Pl. 168, no. 169.)

170. Similar. Length 7·5 in. Fifth century A.D. Jn. '16–F49; mon. court. Cf. p. 385 *supra*. (Pl. 168, no. 170.)

Type *b*. Cf. 'Copper and Bronze', ch. 28, no. 380.

171. Thirty-three double clamping irons, with nails at each end attached to most of them. Length 3–16 in. Fifth century A.D. Jn. '16–F50; mon. court. Cf. p. 385 *supra*. (Pl. 168, no. 171.)

Type *c*:

172. Double clamping iron with single nail at one end only. Length 3·87 in. First century A.D. Sk. '26–985; Block I; sq. 135·50'; stratum II. Cf. p. 171 *supra*. (Pl. 168, no. 172.)

173. Similar to preceding, but made of a single length of stout wire without nail. Length 4·75 in. Fifth century A.D. Jn. '16–F35; mon. court. Cf. p. 385 *supra*. (Pl. 168, no. 173.)

Staples 174. Iron staple and ring. Length 7·62 in. First century A.D. Sk. '14; Trench A634; stratum II. (Pl. 168, no. 174.)

175. Similar. Length 4·37 in. Fifth century A.D. Dh. '15–876; T2; 5 ft. below surface. Cf. p. 247 *supra*. (Pl. 168, no. 175.)

176. Similar, but with single shank and two links of chain attached. Same findspot and same age as preceding. Cf. p. 247 *supra*. (Pl. 168, no. 176.)

CLASS XXXV. *Hinges* (nos. 177–9)

Though larger, the iron hinges are of similar pattern to the copper and bronze ones ('Copper and Bronze', ch. 28, nos. 377–9); it is noteworthy, however (though this is no doubt accidental), that no specimens of iron hinges have been found of a date earlier than the fifth century A.D., whereas the bronze and copper ones are of the first century A.D.

177. Iron door-hinge of double-leaf pattern. Length 6·37 in. Fifth century A.D. Mm. '15–164; cell 23; 6 ft. below surface. Cf. p. 363 (26) *supra*. (Pl. 168, no. 177.)

178. Similar, and of same age, but leaf-pattern on one side only; other side oblong. Length 12·5 in. Jn. '16–F31; mon. court. Cf. p. 385 *supra*; *Jn. Mem.* Pl. XXVIII, *k*. (Pl. 168, no. 178.)

179. Three door-hinges of iron, of same age, but both sides consist of narrow tapering strips. Length 8–13 in. Jn. '16–F56; mon. court. Cf. p. 385 *supra*; *Jn. Mem.* Pl. XXVIII, *o*. (Pl. 168, no. 179.)

CLASS XXXVI. *Chains* (nos. 180, 181)

Cf. 'Copper and Bronze', ch. 28, nos. 383–5.

180. Three figure-of-eight links of chain. Length 6·5 in. First century A.D. Sk. '27–146; Block K'; sq. 165·110'; stratum II. Cf. p. 180 *supra*. (Pl. 168, no. 180.)

181. Two links of iron chain, figure-of-eight pattern, attached to ring-handle. Length 5·2 in. Fifth century A.D. Sk. '17–Kun. 45; south veranda; 3 ft. below surface. Cf. p. 352 *supra*. (Pl. 168, no. 181.)

181, *a*. One figure-of-eight link of door-chain attached to staple. Length 6·75 in. Fifth century A.D. Jn. '16–F40; mon. court. Cf. p. 385 *supra*; *Jn. Mem.* Pl. XXVII, *n*.

Group E. AGRICULTURAL IMPLEMENTS

Class XXXVII. *Spades, spuds and hoes* (nos. 182–99)

The true spade (no. 198) does not make its appearance at Taxila until the first century A.D.—about the same time that it makes its appearance in the Roman world—and was then only used for shovelling purposes. For breaking and hoeing the ground the ordinary tool was a socketed hoe or mattock, shaped like the modern *krurpi*, with the handle set transversely to the blade. The older specimens of these tools from the Bhiṛ Mound (nos. 182–4) have narrow chisel-like blades, and this type continues on into later times; but some of the later specimens of the first century A.D. from Sirkap have broader blades, like the English garden hoe. Side by side with the hoe, a chisel-headed spud was also used at Taxila as far back as the third to second centuries B.C. (no. 191 *infra*). Later on, this tool, like the hoe also, tends to become broader in the blade. It should be noted that the tools which I here class as spuds, to be used with a vertical handle like a Dutch hoe, or spade, are classed by Flinders Petrie as ordinary hoes to be used with a transverse handle (cf. *Tools and Weapons*, Pls. XIX and XX), but inasmuch as the tools described below (nos. 182–90) are unquestionably hoes with transverse handles, it is highly improbable that nos. 191–5, which are of a totally different pattern, were intended to be used in the same way as hoes.

182. Socketed hoe with narrow blade, thinned out and splaying gradually towards the edge. Socket damaged. Length 7·12 in. Bm. '20–892; sq. 28·27′; stratum II. (Pl. 169, no. 182.) Hoes

183. Similar, with narrow-waisted blade and more pronounced bend. Length 8 in. Bm. '21–54; sq. 25·59′; stratum II. (Pl. 169, no. 183.)

184. Similar to no. 183 and of same age, but longer and narrower. Length 9·5 in. Bm. '14–295; stratum II. (Pl. 169, no. 184.)

185. Similar, with larger socket-hole for handle. Length 1 ft. First century A.D. Sk. '14–1,996; Block C′; sq. 44·74′; stratum III. Cf. p. 193 *supra*. (Pl. 169, no. 185.)

186. Similar. Length 9·25 in. First century A.D. Sk. '20–222; Block A′; sq. 22·79′; stratum II. Cf. p. 195 *supra*. (Pl. 169, no. 186.)

187. Similar and of same age as preceding; with straight-edged blade. Length 7·75 in. Sk. '14–1,874; Main Street; sq. 82·73′; stratum II. (Pl. 169, no. 187.)

188. Similar, with blade splayed out towards cutting edge. Length 5·75 in. Sk. '15–732; Block H; sq. 125·67′; stratum II. Cf. p. 170 *supra*. (Pl. 169, no. 188.)

189. Similar to preceding and of same age, but with shorter and broader blade. Length 7·75 in. Sk. '27; Trench D172; stratum II. (Pl. 169, no. 189.)

190. Similar to preceding and of same age, but with still broader blade. Length 7·75 in. Sk. '16–649; Block C; sq. 51·51′; stratum II. (Pls. 169, no. 190; 205, *g*.)

191. Socketed chisel-headed spud. Length 6·37 in. The socket, intended to take a straight vertical handle like a spade, is formed by beating out the metal and bending over the two sides Spuds

to meet in front. Bm. '21–958; sq. 30·125'; stratum I. For type, cf. Flinders Petrie, *Tools and Weapons*, Pl. XIX, 5, 12, 14, 25, etc. (Pl. 169, no. 191.)

192. Socketed spud, with broader blade than preceding and open instead of closed socket. Length 7·37 in. First century A.D. The socket in this specimen consists of two narrow flanges bent only over the edges of the handle. Sk. '20–654; Block B'; sq. 33·86'; stratum II. Cf. Flinders Petrie, *ibid.* nos. 7, 10, 11, 18, etc. Cf. p. 194 *supra*. (Pl. 169, no. 192.)

193. Similar, but with broader blade and closed socket as in no. 191. Length 4·25 in. First century A.D. Sk. '24–91; Block C; sq. 47·41'; stratum II. (Pl. 169, no. 193.)

194. Similar to no. 193, but with open socket as in no. 192. Length 4·25 in. First century A.D. Sk. '16–312; Block B'; sq. 34·75'; stratum II. Cf. Flinders Petrie, *ibid.* nos. 32–3. Cf. p. 194 *supra*. (Pl. 169, no. 194.)

195. Spud(?) with widely splayed blade, probably socketed, but socket destroyed. Length 3·5 in. Fifth century A.D.(?). Dh. '16–545; mon. court A; 3 ft. below surface. Cf. p. 278 *supra*. (Pl. 169, no. 195.)

196. Spud or possibly ploughshare, with more pointed blade and side flanges. Length 9·87 in. Fifth century A.D. From the Kunāla monastery. Sk. '26–Kun. 83; S5: 4 ft. below surface. Cf. p. 352 *supra*. (Pl. 169, no. 196.)

197. Similar to preceding, but with thinner blade. Flanged socket broken. Length 7·25 in. First century A.D. Sk. '15–633; Block C; sq. 43·59'; stratum III. (Pl. 169, no. 197.)

Spades

198. Spade, with double rings for socketing handle, and two rings for attachment of cord. Size 8·12 × 6·37 in. First century A.D. The presence of the two side rings on the face of the spade is of special interest as showing that the spade was intended to be used by two persons for shovelling purposes, just as one sees such implements commonly used in India to-day—one person holding the handle and pushing, the other holding the cord and pulling. Sk. '14–1,604; Block C'; sq. 45·74'; stratum II. (Pls. 169, no. 198; 205, *j*.)

199. Iron shoe for wooden spade made of two sheets of metal hammered together at the cutting edge and united above by three transverse nails. Size 4·62 × 3·37 in. Fifth century A.D. Jn. '16–F47; mon. court. Wooden spades shod with iron were used also by the Romans and Normans. Cf. Flinders Petrie, *op. cit.* p. 55 and Pl. LXVII, 20, 23. Cf. p. 385 *supra*. (Pl. 169, no. 199).

CLASS XXXVIII. *Weeding-forks*(?) (nos. 200–2)

The three following implements were almost certainly used as weeding-forks, but similar implements have been taken for forked arrow-heads for shooting birds and small game. Cf. Flinders Petrie, *op. cit.* p. 35, and Pl. XLI, 167–9. The fork is provided with a tang which fitted into a wooden handle (or shaft) and was further secured by a nail. Two of them date from the first century A.D. The date of the third is uncertain.

200. Two-pronged weeding-fork, with pointed tang for fixing into handle. Length 5·62 in. Near the base of the tang is a nail for securing the fork to the handle. First century A.D. Sk. '15–570; Block G; sq. 97·48'; stratum I. Cf. p. 169 *supra*. (Pl. 169, no. 200.)

201. Similar and of same date. Length 5·25 in. Sk. '17–90; Block F'; sq. 92·74'; stratum II. Cf. p. 183 *supra*. (Pl. 169, no. 201.)

202. Similar. Length 5·5 in. Dh. '30–52; sq. 28·16'; 3 ft. below surface. Cf. p. 287 (10) *supra*. (Pl. 169, no. 202.)

CLASS XXXIX. *Sickles* (nos. 203–7)

The earliest sickles found at Taxila date from the first century A.D., though they must have been in use for many centuries before then. When they do appear, they

present us with two distinct types: one with a curved blade of the shape familiar in Europe; the other with a straight blade and sharply curved handle. Both of these types are to be commonly seen in the Panjāb to-day.

Type *a*:

203. Sickle with curved blade. Inner edge and tang damaged. Length 6·37 in. First century A.D. Sk. '26–998; Block I; sq. 133·54′; stratum II. Cf. p. 171 *supra*. (Pl. 169, no. 203.)

204. Similar, but bent at sharp angle in middle. Inner edge serrated. End flattened out and pierced with nail-hole for attachment of handle. Length 8·62 in. Date uncertain. Dh. '30–73; sq. 29·25′; 2 ft. 2 in. below surface. Cf. p. 287 (11) *supra*. (Pl. 169, no. 204.)

205. Similar, broken at both ends. Plain inner edge. Length 6 in. Early medieval. Dh. '16–768; mon. court A; 14 ft. below surface. Cf. p. 278 *supra*.

206. Similar to no. 203, but with serrated inner edge. Length 8·37 in. Fifth century A.D. Gr. '27–B67; outer wall of monastery, north-west corner. Cf. p. 344 *supra*. (Pl. 169, no. 206.)

Type *b*:

207. Sickle, with straight blade and curved handle. Inner edge of blade serrated and nail-hole in handle for attachment of wooden grip. Length 5 in, but blade and handle broken. First century A.D. Sk. '15–216; Block I; sq. 134·55′; stratum III. Cf. p. 171 *supra*; *A.S.R.* (1915), Pl. VII, 1. (Pl. 169, no. 207.)

GROUP F. MISCELLANEOUS

CLASS XL. (Nos. 208–21)

208. Iron needle. Length 4·37 in. Date uncertain. Dh. '12–19; B4; 7 ft. below surface. Cf. p. 249 *supra*. (Pl. 170, *a*.) Needles

209. Similar. Length 4·25 in. Fifth century A.D. Gr. '27–244D; site D; 4 ft. below surface. (Pl. 170, *b*.)

210. Similar and of same date. Length 4·37 in. Gr. '27–246E; site E; 6 ft. below surface. (Pl. 170, *c*.)

The three iron plummets described below are all from Sirkap and date from the first century B.C. to the first century A.D. For a bronze plummet of the third to second century B.C. from the Bhiṛ Mound, cf. 'Copper and Bronze', ch. 28, no. 375. Such plummets were commonly used by masons and carpenters. Plummets

211. Vase-shaped plummet, broken at top. Height 1·75 in. First century B.C. Sk. '14–1,391; Block F; sq. 84·52′; stratum IV. Cf. p. 166 *supra*. (Pl. 170, *d*.)

212. Similar, with carinated middle. Suspension ring damaged. Height 2·37 in. First century A.D. Sk. '20–221; Block A′; sq. 25·78′; stratum II. Cf. p. 195 *supra*. (Pl. 170, *g*.)

213. Similar to no. 212 and of same date. Height 3·12 in. Sk. '24–297; Block B; sq. 34·50′; stratum II. Cf. p. 148 *supra*. (Pl. 170, *f*.)

214. Jumper (?), square in section with both ends pointed. Length 23·62 in. First century A.D. Sk. '26–4,429/10; Block L; sq. 189·70′; stratum II. Cf. p. 178 *supra*. (Pl. 170, *e*.) Jumper and crowbar

215. Crowbar or lever, square in section, with bent ends. Length 29·5 in. Same age and findspot as no. 214. Stratum II. Cf. p. 178 *supra*. (Pl. 170, *h*.)

216. Weaver's shuttle (?). Length 9 in. First century A.D. Sk. '24–1,584; Block K; sq. 153·64′; stratum II. Cf. p. 176 *supra*. (Pl. 170, *j*.) Shuttle (?)

Numerous ingots of iron, dating from the first century A.D. have been found in Sirkap. They are long torpedo- or shuttle-shaped pieces, hexagonal in section, and Ingots

measuring between 4·75 and 7·12 in. in length by 1·3 to 2·5 in. in width at the middle. Their small size might suggest that the metal of which they are composed was of a superior quality, but analysis has shown that this is not so.

217. 105 ingots, six-sided torpedo-shaped, with truncated ends. Length 4·75–6·5 in. Weight from 1·5 to 4·2 lb. First century A.D. Sk. '28–1,141; Block D'; sq. 62·104'; stratum II. Cf. p. 190 *supra*. (Pl. 170, *i*.)

218. Similar. Length 6·62 in. First century A.D. Sk. '14–1,593; Block C'; sq. 46·74'; stratum II. Cf. p. 193 *supra*. (Pl. 170, *l*.)

219. Similar and of same age. Length 7·12 in. Sk. '24–514; Block C; sq. 49·51'; stratum III. (Pl. 170, *n*.)

220. Similar and of same age, but pointed at one end. Length 5·12 in. Sk. '20–741; Block D'; sq. 61·86'; stratum I. Cf. p. 190 *supra*. (Pl. 170, *k*.)

221. Similar but broader in middle and pointed at both ends. Length 7 in. Date uncertain. Dh. '14–984; B27; 3 ft. below surface. (Pl. 170, *m*.)

Below is a report (T 9073 of 11 July 1938) on the analyses and tests of specimens of these ingots (no. 217) carried out in the Hadfield Research Dept. at Sheffield.

1. Six ingots were received, weighing individually from 1 lb. 11½ oz. to 3 lb. 7¾ oz. The ingots were spindle-shaped, roughly hexagonal in section.

2. Analyses and tests were made on one of the ingots of medium weight, 2 lb. 15 oz., 6 in. long and 1·9 in. at its greatest width.

Chemical Analysis (*per cent*)

	C	Si	S	P	Mn	Fe
3.	0·10	0·03	0·019	0·077	Trace	99·6

General Character

4. A complete longitudinal section showed the ingot to be very porous, some of the holes being ½ in. in maximum dimension.

Mechanical Tests

Hardness

5. The standard diamond pyramid hardness figures over the section varied between 76 and 129, with an average of 95.

6. The hardness figures are mostly only approximate because of the irregular shape of the impressions. Several other determinations were discarded for this reason.

Tensile test

7. A small bar, ½ in. in diameter, was forged from the soundest portion of the ingot, and a tensile test made on the bar without further heat treatment, with results as follows:

Yield point (Tons per sq. in.)	Maximum stress (Tons per sq. in.)	Elongation* (per cent)	Reduction of area (per cent)
16·1	22·8	15·5	43·0

* Length ÷ √area = 4.

8. The specimen was roaky.

Shock tests

9. From the ½ in. bar notched specimens were also prepared and tested with results as follows:

Type of specimen	Energy to fracture	Angle of bend	Brinell hardness	Nature of fracture
B.S.S. 10 mm. sq.	67 ft.-lb.	60° unbroken	156 131	Fibrous; several elongated blow-holes
Fremont	18·4 kg.-m.	128° unbroken	126	Rosky

General Remarks

10. In their chemical analysis these ingots are fairly representative of the many Indian iron specimens, obtained from various locations, which we have examined.

11. Phosphorus contents as low as 0·015% were found in chippings from the iron beams at Konārak, and as high as 0·28% in the fragment from the iron pillar or beam at Dhar.

12. Sulphur analysed as low as 0·002% in tools found in Dekhan, but as high as 0·024% in the Konārak beams, with a general average of 0·009%.

13. The sulphur, 0·019%, in the present ingots, therefore, is rather above the average.

14. It may be recalled, however, that the iron implements from Taxila examined on a previous occasion contained from 0·024 to 0·064% of phosphorus, and only 0·004–0·005% of sulphur.

15. Apparently, therefore, the ingot now examined is individually, as regards its sulphur content, rather higher than the general average of the iron produced at Taxila.

16. Our examination does not indicate any special qualities in this iron above that produced in other parts of India, recognising, however, that, judged by ordinary standards, Indian iron is in general of excellent purity.

Chapter 28. COPPER, BRONZE AND LEAD OBJECTS

Early history of copper and bronze in the Panjāb

COPPER AND BRONZE were in common use in the Panjāb and Sind, if not in the rest of India, as far back at least as the fourth millennium B.C. and the manifold objects made of these metals which have come to light among the ruins of Harappā and Mohenjo-daro bear witness to the remarkable skill with which Indian metal-workers handled them at that remote date. After the eclipse of the Indus civilisation copper (*ayas*), and doubtless its alloys also, continued to be used by Indo-Āryan and non-Āryan alike during the Vedic and subsequent ages down to historic times, but by the time of the later Saṁhitas and Brāhmaṇas iron (*śyāma ayas*) had taken the place of the softer metals for weapons and implements requiring a hard cutting edge, and probably for many domestic utensils as well, since the supply of copper and tin had become inadequate for the increasing needs of the people during the centuries preceding the Christian era.

Clear evidence of this scarcity is forthcoming at Taxila, where hardly any copper or bronze objects have been unearthed of a date earlier than the fourth century B.C., and very few until after the establishment of the Indo-Parthian empire in the first century A.D., but further confirmation of it is also to be found in the *Periplus of the Erythræan Sea*, which mentions (§§49, 56) both copper and tin among the imports from the West which were shipped to Barygaza (Broach) and Nelcynda (near Cochin), as well as in the statement of Pliny (*N.H.* xxxiv, 17) that India possessed neither bronze (*aes*) nor lead but exchanged precious stones and pearls for them. It is also significant that when, under the Parthian rule, copper and bronze had come to be freely used at Taxila, the vast majority of articles made of these metals were not Indian but distinctively Greek or Graeco-Roman in design, showing that prior to that time there could have been little manufacture of such objects in the north-west of India.

Use of the word 'bronze'

The word 'bronze' is used generally by archaeologists to denote an alloy composed of copper and tin, but in this work it is used with a wider significance, just as χαλκός is used in Greek and *aes* in Latin, to include other alloys of copper also, in which the tin is replaced by zinc, nickel or lead. My reason for using the word in this more extended sense is that, without a chemical analysis of each article, it is not possible to determine the precise nature of its alloy, and it is more convenient, therefore, and likely to be productive of less error, if all these alloys are classed together as bronze. In all cases, however, in which the metal has been analysed, its precise nature is, of course, stated.

Available sources of copper

As to the sources from which Taxila obtained its supplies of copper and tin, we have no specific information beyond that already alluded to. In India itself the

most important deposits of copper, or rather of copper ore, from which the metal is likely to have found its way to the Panjāb and North-West, are at Khetri and Singhāna in the Jaipur State, at Rohira in Sirohi State, at Harpat Nāg in Kashmīr, and at Robāt and Ras-kūh in Balūchistān. There are also said to be deposits in Kulū and Narnaul in the Panjāb itself, but nothing very definite is known about them. In Afghānistān, the metal is mined in the neighbourhood of the Safed-kūh, in the Shāh Maqsud, at Nesh, and in other areas; in Western Tibet, it is found in the Zanskar valley; and in Persia, in the Kārādāgh hills north of Tabrīz and round about Kirmān. In the fourth and third millennia B.C., as I have elsewhere shown,[1] Harappā and Mohenjo-daro probably secured the bulk of their copper from Rājputāna, Balūchistān and Persia, but in the centuries of warfare and chaos which followed the break-up of the Indus civilisation it is likely that the foreign sources of supply from Persia, if not from Balūchistān as well, were cut off and not opened again until after the Achaemenid conquest of Gandhāra and the Panjāb at the close of the sixth century B.C. What we know of the conditions prevailing in the Panjāb during the Vedic and Brāhmanic periods points to little settled commerce among the Āryan tribes themselves and still less with outside countries. Under the Maurya emperors, however, whose capital was at Pāṭaliputra in Bihar, mining and the working of metals were organised as a state monopoly, and additional supplies of copper were doubtless obtained from the Singhbhum and other mines within the confines of the empire, as well perhaps as from farther Afghānistān and Persia. We must bear in mind, however, that after the introduction of iron, which is found abundantly throughout the peninsula and is far superior to copper or bronze for all weapons and implements requiring a hard cutting edge, as well as for many other purposes, the need for copper and bronze was substantially reduced, the more so as Indians were accustomed from time immemorial to use pottery for almost every sort of domestic vessel. Probably the most urgent purpose for which these metals were required during the historic period was the coinage, but even for this they were not always obtainable, and in the Andhra dominions, and to some extent among the Śakas, lead was frequently used as a substitute.

For the Parthians, who copied Greek and Roman fashions in using an abundance of metal utensils and ornaments, copper was readily obtainable from deposits either within their own domains or at no great distance from their frontiers, notably from the Persian mines already referred to, from Kadabek in Armenia, from the Caucasus or further afield from Southern Syria, Asia Minor, Cyprus and other Mediterranean countries. Thus the Indo-Parthians at Taxila, who, though independent, maintained a close connexion with the Parthian Empire, would have little difficulty in importing copper from the West or obtaining it more immediately from Kashmīr or Afghānistān, part of which they annexed to their dominions in the early part of the first century A.D.[2]

[1] *M.I.C.* p. 30.

[2] From the fact that copper, tin and lead were imported into Barygaza, Muziris and Nelcynda, Warmington (*Commerce between the Roman Empire and India*, p. 267) concluded that in the first

Sources of tin

In India tin occurs, in the form of cassiterite, in the Dhārwār district and Pālanpur State of Western India, in Rewā Kāntha (Nārukot) and in the Hazāribagh district of Bihar, but even if these deposits were worked in ancient days (which is uncertain), they would not have been adequate to meet the needs of the country. It may be inferred, therefore, that tin was imported from abroad, the most likely source of its supply being the Hindū Kūsh (Paropamisus), Khorassān[1] and the Kārādāgh hills, where its occurrence side by side with copper suggests that this may well have been the spot where the discovery of bronze was first made. From the time, however, that communications were opened up between India and the Mediterranean, tin from Britain, Gaul and Spain was shipped to the western ports of India by way of Egypt[2] or transported overland by way of Parthia. From the resemblance of the Greek word for tin, κασσίτερος, to the Sanskrit *kastira*, it was once inferred (by Lassen, Schlegel and others) that tin found its way to Greece from India, but, as a fact, the borrowing was the other way, *kastira* being derived from κασσίτερος, not vice versa.[3]

Sources of lead

Lead was probably obtained from the same mines as silver at Fāranjāl and other localities in Southern Afghānistān, as well as from Persia, which is particularly rich in this metal. There are lead mines of ancient date, also, near Ajmer in Rājputāna, and others in Bihar and Orissa, the Central Provinces and Madras. In the first century A.D. lead was imported by sea from Europe to Barygaza and other ports of Western India, but it is highly improbable that this supply would have found its way as far as Taxila or any part of the North-West. When Pliny says that India had neither bronze nor lead, he was referring no doubt to the coastal districts of Western and Southern India, which were the only parts really known to Roman traders. Of the North-West and interior of India he could have known very little. Lead was in use in India long before the sea route to the Mediterranean was opened up, but the fact that it was employed for coinage by the Andhras and Śakas indicates that it was far from being a common metal. (Cf. *M.I.C.* pp. 676–7; Schoff, *Periplus*, p. 221; Warmington, *op. cit.* pp. 267–8.)

Below are set out in tabular form the analyses of some representative specimens of copper and bronze made by Mr Sana Ullah, Archaeological Chemist to the Government of India, and his late Assistant, Dr M. A. Hamid. To Mr Sana Ullah I am also indebted for the very instructive notes which accompany the tables. The metals and alloys in the specimens fall naturally into six groups, viz.: (1) soft copper; (2) bronze unalloyed with lead; (3) bronze alloyed with lead; (4) brass; (5) copper and nickel alloy; (6) solder.

century A.D. India was entirely dependent on the West for those metals, but it is quite impossible that the large quantities of copper used under Parthian rule at Taxila could have been imported by sea. The chief sources of supply must have been the copper mines of Afghānistān and perhaps Kashmīr. The imports referred to in the *Periplus* (49, 56) probably got no further than the markets of Western India, where copper and lead were harder to come by than in the North-West.

[1] These doubtless are the mines of Drangiāna referred to by Strabo (xv, 724).

[2] Cf. *Periplus*, 7, 28, 49, 56; Warmington, *op. cit.* pp. 269–70.

[3] Cf. Dar. et Sag. *s.v.* 'Stannum'; *C.H.I.* vol. I, p. 391.

Table I. SOFT COPPER OBJECTS

S.U. = Mr Sana Ullah. M.H. = Dr M. A. Hamid.

	Object	Reference number	Age (century)	Copper	Tin	Arsenic	Antimony	Iron	Nickel	Zinc	Lead	Sulphur	Total	Analyst	Remarks
1	Flat bar	Bm. '30–1,087	5th B.C.	97·78	—	—	—	1·79	—	—	—	—	99·57	S.U.	Cf. pp. 101, 574
2	Rod	Bm. '20–302	4th B.C.	98·33	0·19	0·19	0·35	0·45	0·51	—	Trace	—	100·02	S.U.	Cf. pp. 103–4, 574
3	Ear-cleaner	Bm. '19–275	3rd B.C.	97·11	—	0·25	0·99	0·70	0·29	—	0·20	0·46	100·00	M.H.	—
4	Plate	Sk. '14–1,779	1st B.C.	98·93	—	Trace	0·16	0·17	0·52	—	—	0·22	100·00	M.H.	—
5	Sheet	Sk. '26–2,194	1st A.D.	98·13	—	0·23	0·59	0·24	0·30	—	—	0·51	100·00	M.H.	—
6	Ladle	Sk. '30–337	"	99·10	—	0·02	0·16	0·44	0·12	—	—	—	99·84	S.U.	—
7	Pan	Sk. '28–1,307/c	"	99·68	0·11	Trace	—	0·09	0·11	—	—	—	99·99	S.U.	—
8	Spout of pot	Sk. '16–252	"	77·45	0·74	0·24	—	0·56	0·43	Trace	18·65	—	98·07	S.U.	Silver trace

Table II. OBJECTS OF BRONZE UNALLOYED WITH LEAD

	Object	Reference number	Age (century)	Copper	Tin	Arsenic	Antimony	Iron	Nickel	Zinc	Lead	Sulphur	Total	Analyst	Remarks
9	Rod	Bm. '19–558	4th B.C.	87·24	8·28	0·55	0·46	1·23	0·91	—	0·94	0·39	100·00	M.H.	Cf. p. 574
10	Round bowl	Bm. '30–916	3rd B.C.	76·76	21·55	0·16	—	0·95	0·48	—	—	—	99·90	S.U.	Cf. no. 276, *a infra* and p. 107
11	Bell	Sk. '30–216	2nd B.C.	74·80	24·14	0·10	0·20	0·55	0·21	—	—	—	100·00	S.U.	Cf. no. 345, *a infra*
12	Mirror	Sk. '14–1,385	1st B.C.	74·28	24·85	0·04	0·12	0·71	—	—	—	—	100·00	S.U.	Silver trace
13	Dish with central boss	Sk. '17–109	1st A.D.	75·69	22·40	0·06	1·13	0·30	0·34	0·07	0·01	—	100·00	S.U.	—
14	Mirror	Sk. '33–143/10	"	74·61	22·00	0·11	1·23	0·71	0·47	—	—	—	100·00	S.U.	Silver = 0·87 %
15	Bowl	Sk. '15–1,115	"	75·54	23·20	0·28	0·30	Trace	0·49	Trace	—	—	99·81	S.U.	Cf. no. 283 *infra* and p. 134
16	Ram-headed handle of saucepan	Sk. '33–143	"	87·15	11·66	—	—	0·88	—	Trace	0·31	—	100·00	S.U.	—
17	Bowl	Sk. '22–645/16	"	75·69	23·69	—	—	0·37	0·25	Trace	—	—	100·00	S.U.	—
18	Goblet	Sk. '27–1,021	"	73·39	25·59	—	0·12	0·71	0·15	—	0·05	—	100·00	S.U.	—
19	Mixing pan	Sk. '14–111	"	74·24	24·58	0·18	0·02	0·72	0·26	—	—	—	100·00	S.U.	—

TABLE III. OBJECTS OF BRONZE ALLOYED WITH LEAD

	Object	Reference number	Age (century)	Copper	Tin	Arsenic	Antimony	Iron	Nickel	Zinc	Lead	Sulphur	Total	Analyst	Remarks
20	Handle of bell	Sk. '29–2,653	2nd B.C.	85·24	9·79	0·13	0·27	0·48	0·71	—	3·38	—	100·00	S.U.	—
21	Flask	Sk. '29–2,010/1	"	80·38	7·34	—	—	1·33	0·26	2·49	7·78	—	99·58	S.U.	—
22	Stand of goblet	Sk. '29–1,855	1st B.C.	87·42	2·12	0·15	0·06	2·49	0·65	—	7·06	—	99·95	S.U.	—
23	"	Sk. '13–1,015	1st A.D.	80·98	15·03	0·10	0·13	0·09	0·27	—	2·59	0·81	100·00	M.H.	—
24	Lion	Sk. '20–318	"	83·75	7·34	0·20	—	1·94	0·78	—	5·42	—	99·43	S.U.	Cf. no. 322 *infra*
25	Cock	Sk. '30–159	"	83·35	5·62	—	—	0·56	1·00	—	9·61	—	100·14	S.U.	Cf. no. 428 *infra*
26	Flask	Sk. '13–A 492	"	83·57	4·50	0·20	0·30	1·48	1·51	0·52	7·92	—	100·00	S.U.	—
27	Rod	Jn. '16–F 556	5th A.D.	76·50	9·39	0·25	—	0·21	0·05	—	12·71	0·89	100·00	M.H.	—

TABLE IV. OBJECTS OF BRASS

	Object	Reference number	Age (century)	Copper	Tin	Arsenic	Antimony	Iron	Nickel	Zinc	Lead	Sulphur	Total	Analyst	Remarks
28	Vase	Bm. '15–284	3rd to 2nd B.C.	55·39	4·25	—	0·26	1·77	0·40	34·34	3·08	—	99·49	S.U.	—
29	Bangle	Sk. '29–2,681	2nd B.C.	73·72	0·10	—	0·18	0·42	—	19·70	5·84	—	99·96	S.U.	—
30	Bangle	Dh. '30–20	1st to 5th A.D.	76·75	2·58	—	—	—	0·11	13·07	6·33	—	98·84	M.H.	—
31	Pot	Dh. '33–273	"	79·19	3·58	Trace	0·10	0·94	0·09	12·88	3·22	—	100·00	S.U.	—

TABLE V. OBJECTS OF COPPER-NICKEL ALLOY

Object	Reference number	Age (century)	Copper	Tin	Arsenic	Antimony	Iron	Nickel	Cobalt	Lead	Sulphur	Total	Analyst	Remarks
32 Antimony-rod	Bm. '21–432	3rd to 2nd B.C.	87·05	2·01	—	—	0·98	9·02	0·86	—	—	99·92	S.U.	—
33 Bangle	Bm. '14–290	"	78·09	0·64	—	—	1·53	18·88	?	—	—	99·46	M.H.	—
34 Coin of Euthydemus II	—	2nd B.C.	77·58	0·04	—	—	1·05	20·04	0·55	—	0·09	99·35	—	—
35 Plate	Sk. '14–1,746	1st B.C.	77·45	—	—	0·30	0·68	21·35	0·52	—	—	100·30	S.U.	—

TABLE VI. SOLDER

Object	Reference number	Age (century)	Copper	Tin	Arsenic	Antimony	Iron	Nickel	Cobalt	Lead	Sulphur	Total	Analyst	Remarks
36 Filling from the bottom of Kohl flask	Sk. '29–2,010/1	2nd B.C.	0·62	0·20	—	0·85	0·35	—	—	97·98	—	100·00	S.U.	Cf. no. 204 *infra*
37 Solder	Sk. '28–1,307/*c*	1st A.D.	3·11	46·13	—	0·37	0·72	—	—	49·67	—	100·00	S.U.	Zinc trac

NOTES ON THE ABOVE TABLES

I. Soft copper

'The analyses given in Table I show that soft ductile copper of great purity was freely used at Taxila for hammering out domestic utensils, bars, sheet and wire. Ordinarily the impurities present in this metal do not exceed 3 %; often it is of very great purity. In one of the specimens the impurity amounts only to 0·32 %. This suggests the use of natural copper such as exists in the Zanskar valley,[1] but the presence of sulphur in some of the objects leaves no doubt that the sulphide ore was also used for the preparation of copper of this quality. It is evident, therefore, that at the time these particular objects were made (third century B.C. to first century A.D.) metallurgical skill had reached a high level. The last specimen contains a high percentage of lead which was added to facilitate casting. Unalloyed copper was never cast at Taxila.

II. Bronze unalloyed with lead

'Bronze containing 21–25 % tin, but free from lead, was in general use at Taxila for casting domestic utensils, bells, ornamental pieces, etc. (Table II, 10–15, 17–19). This alloy is very hard and easy to cast on account of its low fusibility but has the disadvantage of being brittle. This fact attracted the notice of Nearchus, Alexander's admiral, who remarked that the Indians at that time employed only cast-bronze, not hammered, so that their vessels broke like earthenware if they fell.[2]

'Bronze containing 8–12 % tin, free from lead and corresponding to the modern gun-metal, was employed to a much less extent here (Table II, 9, 16). Alloys of this composition possess great strength and elasticity but their melting-point is higher than those mentioned above. The ram-headed handle (Table II, 16) was evidently hollow cast by the *cire perdue* process.

III. Bronze alloyed with lead

'Another group of bronze objects found at Taxila from an early period contain much less tin but considerable proportions of lead (Table III). The amount of these ingredients is so irregular as to suggest a haphazard practice, but the true explanation seems to be that the alloy for these particular objects was made from scrap copper and bronze to which some lead was added to render the molten metal sufficiently fluid for easy casting. Even at the present day it is the common practice to collect scrap metal and utilise it for casting cheap articles of trade. Such alloys are very weak on account of the excessive lead which they contain, and they are therefore fit for casting only.

IV. Brass

'The objects of brass discovered at Taxila are especially interesting, as they represent the earliest specimens of this alloy so far found in India. In Kauṭilya's *Arthaśāstra* (*c.* fourth century B.C.) brass (if that is the correct translation of *arakuta*), is included among the metals which were to be manufactured by the superintendent of mines.[3] In the *Charaka-Saṁhitā* brass (*riti*) is mentioned along with gold, silver, copper and tin. In giving directions for the purification of utensils Manu includes those of brass (*riti*). Moreover, there is a recipe in

[1] The analysis of a specimen of Zanskar copper made by Mr Sana Ullah gave: Cu 99·48; Fe 0·081; Insol. (SiO, etc.) 0·34 %.

[2] Nearchus, frag. 7 = Strabo, xv, c. 716; *C.H.I.* I, p. 418.

[3] *Op. cit.* p. 86.

Rasaratnākara (seventh century A.D.) for converting copper into brass, by heating it with calamine and carbonaceous matter; and the same has been repeated in *Rasārṇava* (twelfth century A.D.). The literary evidence, therefore, shows that brass was in use in India as far back as the fourth century B.C. and manufactured from calamine and copper. The alchemic works show further that brass was not recognised as an alloy until much later.

'Although the credit for devising a method for the extraction of the metal zinc, called essence of calamine (Skr. *rasaka*), goes to the Indian chemist Nagarjuna, who flourished in the seventh century A.D.,[1] yet it was not realised until centuries later that this metal was a component of brass. The fact that brass was an alloy of copper and zinc was comprehended in India only in the sixteenth century, when it is clear from the statement in Bhavamiśra's *Bhavaprakāśa* that brass is a semi-metal (*upadhātu*) of zinc and copper, because it is derived from these two metals. It need hardly be added that henceforth brass was prepared from copper and zinc.[2]

'The earliest brass was prepared by the smelting of copper ores richly associated with zinc, such as occur in certain parts of the world.[3] When these were exhausted, calamine was introduced for this purpose. In India, zinc ore occurs very sparingly, the only appreciable deposits known so far being situated at Jawar in Udaipur State. Copper ore associated with that of zinc is common in Sikkim.[4] Other sources of zinc within reach of North-West India were the rich mines of Honan (China), the Altai Mountains, and Kerman (Persia). Early brass objects have been discovered in China, Persia (Achaemenid), Palestine (Gezer), Russia and in Asur graves in Chota Nagpur.[5]

'The brass specimens contain both lead and tin in appreciable proportions, so that the alloy was too hard for hammered work, and suitable only for casting.'

To the above note by Mr Sana Ullah it should be added that brass (Gr. ὀρείχαλκος; Lat. *orichalcum*) was well known to the Greeks and Romans as far back at least as the third century B.C. and used by them for statues, mirrors, cymbals, bells, flutes, coins and a variety of other objects. It seems likely, therefore, that the introduction of brass at Taxila was due to the Greek and other foreign invaders from the West, to whom so much of the copper and bronze-work can be traced. Zinc was not known to either Greeks or Romans as a metal but only as an ore (καδμεία). Cf. Dar. et Sag. *s.v.* 'Orichalcum'; *Cat. of Bronzes in the Brit. Mus.* pp. xxviii *sq.*

V. Copper-nickel alloy

'Another highly interesting alloy which has been discovered at Taxila, is composed of nickel and copper (Table V). It was evidently prepared by the smelting of mixed ores of copper and nickel which are known to occur naturally in the province of Yunnan, China. This alloy is known as *pai-t'ung*, meaning white copper, in China and as packtong in Europe. It is said to be mentioned in the annals of the Han Dynasty, which also contain evidence of the existence of trade relations between China, India and Bactria in the second century B.C.[6] These facts would explain the use of this rare alloy in the coins of Euthydemus II, Agathocles and Pantaleon, all of whom had close relations with Bactria, though they reigned south of the

[1] P. C. Ray, *A History of Hindu Chemistry*, I, p. 49.

[2] Cf. Neogi, *Copper in Ancient India*.

[3] Such natural copper-zinc alloys are referred to by Pliny (*N.H.* XXXIV, 2), but their existence is questioned by A. Jacob (Dar. et Sag. *s.v.* 'Orichalcum'). And cf. Rossignol, *Les métaux dans l'antiquité*, p. 225; Blümner, *Technologie und Terminol. der Gewerbe und Künste*, p. 197. [J. M.]

[4] La Touche, *Indian Geography and Physical Geology*, p. 490.

[5] S. C. Roy, 'Distribution and nature of Asur sites in Chota Nagpur', *J.B.O.R.S.* (1920), pp. 404–5.

[6] Bushell, *Chinese Art*, I, p. 12. (In the second century B.C., however, trade with China was still indirect. Through caravans between Iran and China started only in 106 B.C., as a result of Chang-k'ien's missions. Tarn, *The Greeks in Bactria and India*, p. 87. [J. M.])

Hindu Kush. Articles of this alloy occur at Taxila from the third century B.C., but seem to have disappeared after the first century B.C.

'This nickel alloy is very ductile and well adapted for hammered work. It was evidently valued on account of its durable silvery lustre and employed, therefore, for jewellery, coinage and small fancy goods.

'The amount of nickel in the earliest specimen is only 9%, but the later ones contain a fairly regular proportion, i.e. 19–21%. Nickel alloys of this kind have not so far been found at any other ancient site in India.

VI. Solder

'At the bottom of a flask (Table VI, no. 36) a filling of lead has been used for blocking the holes which had evidently been made to free the inside of the object from sand after casting. The chemical analysis shows that it is practically pure lead (98%).

'For soldering, an alloy of lead and tin was commonly used. A specimen of solder employed for affixing the ring-base to a pan contained equal proportions of these two metals (Table VI, no. 37). Tin-lead solders seem to have been known to most of the civilised nations of antiquity.'

The processes employed at Taxila in the manufacture of copper and bronze objects were as follows: (*a*) the hammering of metal into appropriate shapes for vessels, ornaments, etc., and where necessary, the riveting and soldering together of plates so hammered; (*b*) solid casting; (*c*) hollow-casting by the *cire perdue* process; (*d*) embossing or repoussé-work.

Hammering process

As regards (*a*), hammering is the simplest and most natural process in all cases where the vessel or other object can be raised from sheet-metal. In ancient Greece the object thus made was called σφυρήλατον, and during the archaic period, before the introduction of the *cire perdue* process, large statues were made in this way, the pieces of beaten metal being riveted or soldered together. In India and Burma the same process is still sometimes employed in making large metal statues, and it is likely enough that it was employed for the same purpose in ancient times, though no such statues have survived. At Taxila, the hammering process is well illustrated in some of the large cauldrons and cooking vessels of the first century A.D., such as nos. 255–8, which are made in sections and riveted together, but this process was employed in fashioning most kinds of domestic utensils and many ornaments as well.[1]

Solid casting

(*b*) Solid casting was ordinarily employed for statuettes, utensils, etc., where weight was of no moment. The moulds in which the metal was cast were sometimes made of stone or terra-cotta, but other materials such as sand, clay or gypsum must also have been used. Examples of stone moulds for small objects are described and illustrated among the 'Stone Objects', ch. 25, nos. 141–52. The terra-cotta

[1] Mr Sana Ullah notes that the forging process is rather tedious and requires great experience. At the present time the industry is confined to certain localities where the traditional practice of bronze-working is being pursued by one generation after another. This process has to be carried out in a dark chamber, generally at night. Red-hot bronze is taken out of the furnace and hammered until a certain kind of glow is emitted by the metal. When this stage has passed, it becomes brittle and the hammering has to stop. Bronze containing 21–25% tin (corresponding to our bell-metal) was probably used for casting only, while lower grades with 8–11% tin were mostly employed for forged vessels.

moulds nos. 36, 44, 134, 146–52 were used only for making clay casts or for coins. For statuettes and other objects in the round, the moulds used were in several sections (piece-moulds), which could be taken apart after the object had been cast and used again; for solid reliefs with flat backs the moulds were open and made in a single piece.

Cire perdue process

(*c*) An obvious drawback to solid casting, except when the object was small, was the excessive weight of the metal; and another drawback was that it could not be used for casting hollow vessels, etc. It was to overcome these drawbacks that the *cire perdue* process was invented. In this process a model of the object is first made in clay or plaster, in such a way that it can be broken up without difficulty after firing. The model is then coated with wax of a thickness equal to the intended thickness of the metal to be cast, and in this wax the artist gives his finishing touches to the work. The whole is next covered with several 'slips' of clay water and finely pounded pottery followed by a more solid coating of clay and broken pottery; after which metal rods are thrust through the mass at various points to hold the core in position, and vent-holes and tubes for carrying off the wax are provided. The whole is then placed in a furnace, and when the wax has melted and run out, molten metal is poured in to take its place. Subsequently, when the mass has cooled, the outer mould is removed and the inner core raked out, leaving a replica of the wax in bronze. Any minor defects are made good with the help of the chisel or file or by inlaying small pieces of metal in the surface.[1]

At Taxila none of the statuettes unearthed is sufficiently large to have been hollow-cast, but from the second century B.C. onwards the *cire perdue* process was frequently employed for the fabrication of household vessels and utensils, e.g. nos. 204 and 259 (Greek); nos. 324, 325 (Early Śaka); nos. 207, 252, 260–2, 274, 275, 326, 328, 329, 331, 332 (Śaka-Parthian).

Embossing or repoussé-work

(*d*) In repoussé-work a thin plate of metal was heated and pressed down on a bed of pitch.[2] On this plate the pattern was drawn and roughly blocked out with a punch and hammer, and the process of heating and hammering repeated as often as necessary. Then the plate was reversed and the face worked up with punches and chasing tools. Among the Greeks this process, known as ἐμπαιστική, was brought to the highest pitch of excellence, and in India and Burma to-day it is productive of much admirable work, both figural and decorative. At Taxila the finest example of it is the silver head of Dionysus ('Silverware', ch. 29, no. 21). So far as copper and bronze objects are concerned, most of the embossed reliefs appear to have been made by hammering the metal sheet on to a solid metal die, instead of doing the work by hand, the advantage of this method being that exact facsimiles could be turned out at a quicker and cheaper rate. Cf. nos. 37–203.

Some of the processes described above had been familiar to Indian craftsmen long before the advent of the Greeks. Indeed, they had been practised in the

[1] See *B.M. Cat. of Bronzes*, p. xxxii.

[2] Modern recipes for this purpose are: pitch, four parts; rosin, four parts; plaster of Paris, two parts; or, pitch, five parts; plaster of Paris, four parts; and a small quantity of Russian tallow.

Panjāb and Sind as far back as the Chalcolithic Age, and though no examples of copper and bronze work, except weapons, have survived from the intervening centuries, we may be sure that the old technique had not been forgotten. We cannot, therefore, give to the Greeks or their successors, the Śakas and Parthians, the credit for having introduced these processes at Taxila. Nevertheless, the vast majority, not only of the copper and bronze, but of the gold and silver objects found at Taxila are so strikingly Greek or Graeco-Roman in character, that there can be no room for doubting the extent of the debt which the local craftsmen owed to their foreign conquerors in the matter of either design or technique; and this conclusion is borne out by Strabo's remark already alluded to as to the inferior quality and limited nature of Indian bronze-work prior to the coming of Alexander the Great.

Objects from Bhiṛ Mound

Of thirty-two copper and bronze objects from the early Bhiṛ Mound site, twenty-three are hammered and nine solid-cast. None are hollow-cast, nor do they include any specimens of embossed relief. Of these thirty-two pieces, one only—a plain bar of copper (Analysis Tables, pp. 567–8, no. 1) is referable to the fifth century B.C., and three—a pendant (no. 21) and two rods (*ibid.* nos. 2 and 9) to the fourth century B.C. The rest are of Maurya date and comprise such simple and easily fabricated articles as the bangles, nos. 1, 4, 7, 9, 13, 16; pendants, nos. 22–4; ear-cleaners, nos. 217–18; hair-pin, no. 226; antimony-phials, nos. 240–1; bowls, nos. 276 and 276, *a*; stili, nos. 340–1; bells, nos. 344–5; decapitators (?), nos. 357–8; needle, no. 370; plummet, no. 375; and wheel of toy cart, no. 390.

Objects from Sirkap

Of the objects recovered from the several settlements on the Sirkap site (p. 579), twelve only come from the Indo-Greek strata (nos. 264, 259, 304, *c*, 320, 323, 329, *a*, 345, *a*, 350, *a* and Analysis Tables, nos. 11, 20, 21, 29); nineteen from the Early Śaka stratum (nos. 17, 27, 227, 243, 252, *a*, 283, 324, 325, 330, 353, 371, 372, 380, 388, 427 and Analysis Tables, nos. 4, 12, 22, 35); and nearly 350 from the Late Śaka-Parthian and Early Kushān strata. The rest are from the Dharmarājikā Stūpa and other sites, mainly of the medieval period. These figures must not, of course, be taken to represent the actual relative proportions of the copper and bronze objects found in the respective strata, since a much larger area of ground was opened up in the Late Śaka-Parthian city than in the antecedent and more deeply buried cities of the Early Śakas and Greeks. Making all due allowance for this, however, it is abundantly clear that the establishment of Parthian rule at Taxila gave an immense impetus to the importation and manufacture of this class of objects.

The objects from the Greek level comprise: a bangle, an unguent flask, spouted water-pot, portable and standard incense-burners, basin and bell-handles, inkpot and seven bells; those from the Early Śaka level, a bangle, pendant, hair-pin with figure of Aphrodite, antimony phial, jewel-casket, bowl, standard incense-burners, inkpot,, key, needles, clamps, shield-boss, and a Bactrian camel in relief. Against these, the Parthian and later remains of the first century A.D. have yielded a great variety of ornaments and household utensils, including: bangles, bracelets, ear-rings, pendants, brooches, buckles, clasps, parts of necklaces and girdles, unguent pots and bowls, mirrors, antimony-rods and phials, hair-pins, ear-cleaners and

toothpicks, jewel-caskets, cauldrons, jugs, drinking-cups, goblets, vases, dishes, bowls, saucers, frying-pans, mixing-pans and basins, ladles, spoons, incense-burners, standard bowls, inkpots and pens, bells, keys, spatulas, scale-pans, hammers, blow-pipe, hinges, clamps, staples, chains, flute, shield-boss, toy carts, staff-head, finial, figurines and miscellaneous reliefs.

Some of these articles of the first century A.D., e.g. the spouted vessel no. 260 and the two figurines nos. 421 and 422, were of traditional Indian design, but these were very few. The vast majority, as we shall see in the following pages, were copies of Graeco-Roman originals, and, like the contemporary gold jewellery and silverware, afford striking testimony of the extent to which the Parthians at Taxila were indebted to the material culture of the Western world. In contrast with them, the copper and bronze objects recovered from the later Buddhist monasteries and datable to the fifth century A.D., are almost exclusively Indian in character, though here and there a faint trace can be seen of classical influence.

Some general remarks on the copper and bronze objects from the Bhiṛ Mound will be found in vol. I at pp. 101, 103–4, 106–7 and 111; and on those from Sirkap at pp. 125–6, 128–9, 134, 204–8. Other references are given in the individual entries of the catalogue below.

Group A. PERSONAL AND OTHER ORNAMENTS

Personal ornaments made of copper and bronze comprise bracelets, bangles, ear-rings, ear-pendants, brooches, neck-pendants and buckles.

Class I. *Bracelets, bangles and armlets* (nos. 1–18)

These are referable to all periods from the third century B.C. to the fifth century A.D., and are of various types. The simplest form (type *a*) is a plain circlet of wire, sometimes open on one side, so that the bangle could be expanded when slipping it on to the wrist. In type *b* the wire is twisted like a cable, or into knots and spirals. In another simple form the bracelet is made of a broad flat band of metal, sometimes with a shallow flange on either side (type *c*), sometimes cut and perforated into a running pattern (type *d*). The more elaborate bangles of type *e* seem to have been largely influenced in form and decoration by the contemporary bangles of bone, shell and glass (cf. 'Jewellery', ch. 30, nos. 102–43; 'Bone and Ivory', ch. 32, nos. 1–4; 'Shell Objects', ch. 33, nos. 16–41; 'Glass', ch. 35, pp. 684–5). Then there is the still more elaborate type *f*, with a cumbersome medallion in the Hellenistic style attached to it. With the exception of the specimens made of thin wire (e.g. no. 6) or of thin beaten metal (e.g. nos. 7–9), all these bangles and armlets appear to have been cast in moulds.

Type *a*. *Of plain wire.*

1. This is a wrist-bangle of round wire with open knobbed ends; diam. 2 in. Third to second century B.C., from the Bhiṛ Mound. Bm. '21–555; D65; stratum I. Cf. ch. 3, p. 111. (Pl. 171, *a*.)

STRATIGRAPHICAL CHART OF COPPER, BRONZE AND LEAD OBJECTS

Class	Bhir Mound strata				Sirkap strata					Other sites[1]	Class
	IV 5th to 6th century B.C.	III 4th century B.C.	II Maurya	I Surface	VII ?Pre-Greek	VI–V Greek	IV Early Śaka	III–II Late Śaka-Parthian	I Surface		
Group A. Personal and Other Ornaments											
I. Bracelets, bangles and armlets (nos. 1–18)	—	—	4, 8, 9, 13	1, 7, 16	—	—	17	2, 3, 6, 10, 11, 14, 18	—	12 from Kun. 15 from Mm 20 from Kun.	I
II. Ear-rings (nos. 19, 20)	—	—	—	—	—	—	—	19	—		II
III. Pendants and brooches (nos. 21–8)	21	—	22, 23	24	—	—	27	25, 28	—	—	III
IV. Buckles, clasps, etc. (nos. 29–36)	—	—	—	—	—	—	—	29, 31–6	—	—	IV
V. Groups of dies for personal ornaments (nos. 37–203)	—	—	—	—	—	—	—	37–203	—	—	V
Group B. Toilet Articles											
VI. Unguent pots and bowls (nos. 204–7)	—	—	—	—	—	204	—	205–7	—	—	VI
VII. Mirrors (nos. 208–11, *f*)	—	—	—	—	—	—	—	208, 211, *a–e*	—	209–11, *f*, from Ml.	VII
VIII. Antimony-or kohl-rods, toothpicks and ear-cleaners (nos. 212–25)	—	217	218	—	—	—	—	212, 213, 215, 216, 219–25	—	214 from Dh.	VIII
IX. Hair-pins (nos. 226–39)	—	—	226	—	—	—	227	228–39	—	—	IX
X. Antimony- or kohl-phials and stoppers (nos. 240–51)	—	—	240, 241	—	—	—	243	242, 245–51	—	244 from Dh.	X
XI. Jewel caskets (nos. 252–4)	—	—	—	—	—	—	252, *a*	253	252, *b*, 254	—	XI
Group C. Household Vessels, etc.											
XII. Cooking-pots and cauldrons akin to the modern *handi* and *deg* (nos. 255–8)	—	—	—	—	—	—	—	255–8	—	—	XII
XIII. Handled jugs and ewers (nos. 259–65)	—	—	—	—	—	259	—	260, 261, 263–5	—	262 from Ml.	XIII
XIV. Standard drinking-cups, goblets and beakers (nos. 266–73)	—	—	—	—	—	—	—	266–8, 271, 272	—	269, 270, 273 from Ml.	XIV
XV. Small flask-like vases with flat bottoms and flared mouths (nos. 274–5)	—	—	—	—	—	—	—	274, 275	—	-	XV
XVI. Bowls and cups (nos. 276–88)	—	—	276, 276, *a*	—	—	—	283	278, *a–c*, 281, 282, 286, 287	—	277, *a*, *b*, 280, 284, 285 from Dh. 279, 288 from Ml.	XVI
XVII. Dishes and saucers (nos. 289–97)	—	—	—	—	—	—	—	289–91, 293, 295, 296	292	294, 297 from Ml.	XVII

XVIII. Frying-pans (nos. 298–300)	—	—	—	—	—	—	—	298–300	—	—	XVIII
XIX. Mixing-pans and basins (nos. 301–4)	—	—	—	—	—	304, *c*	—	301–4, *a*, *b*	—	—	XIX
XX. Ladles (nos. 305–8)	—	—	—	—	—	—	—	305, 306, 308, *a*, *b*,	—	307 from Ml.	XX
XXI. Spoons (nos. 309–19)	—	—	-	—	—	—	—	309–15, 317	—	316 from Ml. 318 from Mm. 319 from Jn.	XXI
XXII. Incense-burners (nos. 320–2)	—	—	—	—	—	320	—	321	322	—	XXII
XXIII. Standard incense-bowls(?) (nos. 323–7, *a*)	—	—	—	—	—	323	324, 325	326, 327, *a*	—	—	XXIII
XXIV. Inkpots, pens and stili (nos. 328–43)	—	—	342, 343	—	—	329, *a*	330	328, 332, 334–6, 338, 340, 341	331, 333, 337, 339	329 from Ml.	XXIV
XXV. Bells (nos. 344–52)	—	—	344, 345	—	—	345, *a*, 350, *a*	—	346–9	350, *b*	351, 352 from Jn.	XXV
XXVI. Keys (nos. 353–6)	—	—	—	—	—	—	353	354, 355	356	—	XXVI
Group D. Surgical and Other Instruments and Miscellaneous											
XXVII. Surgical and other instruments (nos. 357–72)	—	—	370	357, 358	—	—	371, 372	359, 360, *a*, *c*, 361–7, 369	—	360, *b* from Ml. 368 from Dh.	XXVII
XXVIII. Tools, hinges, clamps, handles and chains (nos. 373–85)	—	—	375	—	—	—	380	373, 374, *a–f*, 376–9, 381, 383, 384	382	385 from Jn.	XXVIII
XXIX. Miscellaneous (nos. 386–401)	—	—	—	390	—	—	388	387, 395–400	391–3	386, 394 from Jn. 389 from Ml. 401 from Dh.	XXIX
XXX. Door ornaments (nos. 402–12)	—	—	—	—	—	—	—	408	—	402, 404 from Dh. 403 from Mm. 405, 412 from Kn. 406, 410, 411 from Jn. 409 from Gr. 407 from Pl.	XXX
XXXI. Finials of votive stūpas (nos. 413–16)	—	—	—	—	—	—	—	413	—	414, 416 from Jn. 415 from Dh.	XXXI
Group E. Figurines											
XXXII. Figurines, etc. (nos. 417–30)	—	—	—	—	—	—	427	417–20, 422, 425, 426, 428, 429	421	423, 430 from Dh. 424 from Jn.	XXXII

[1] Dh. = Dharmarājikā; Gr. = Giri; Jn. = Jauliāñ; Kn. = Kālawān; Kun. = Kunāla; Ml. = Mahal; Mm. = Mohṛā Morādu; Pl. = Pippala.

2. Bangle of wire with open knobbed ends, from Sirkap. Diam. 3·5 in. The wire is oval in section. First century A.D. Sk. '16–169; Block A; sq. 20·60'; stratum II. Cf. p. 146 *supra*.

3. Wrist-bangle of round wire with open ends, from Sirkap. Diam. 2·5 in. First century A.D. Sk. '15–940; Block B; sq. 38·43'; stratum II. Cf. p. 148 (4) *supra*. (Pl. 171, *b*.)

Type *b*. *Of twisted wire.*

4–5. No. 4, a wrist-bangle of Maurya date from the Bhiṛ Mound, is similar to no. 1, but with the wire twisted cable-wise. Diam. 2 in. Bm. '20–1,486; sq. 26–46'; stratum II (cf. ch. 3, p. 107).

No. 5, a broken specimen from Sirkap of the first century A.D., is made in the same way. Diam. 2 in. Sk. '16–1,099; spoil earth. (Pl. 171, *c*, *d*.)

6. In this specimen, which also comes from the Parthian level in Sirkap, the wire is thinner and of bronze, and is twisted into coils and an interlaced knot (*nodus Herculeus*). Diam. 2 in. Sk. '12–519; Block G; sq. 104·67'; stratum II. Cf. 'Jewellery', ch. 30, nos. 104–15; p. 169 *supra*. (Pl. 171, *e*.)

Type *c*. *Of thin flat metal with flanged edges, intended to be covered with gold-leaf or perhaps with paste or enamel.* All the specimens of this type are of Maurya date from the Bhiṛ Mound, and all are of copper.

7. Bracelet made of a thin broad band of copper, with the edges flanged on the outer side. Diam. 2·62 in. The surface was covered with gold-leaf. Bm. '12–20/7; stratum I. Cf. *A.S.R.* (1912), p. 41, no. 11. From same hoard as 'Jewellery', ch. 30, nos. 71, 72, 80, 82, 83, 88, 166, 204–10; 'Pottery', ch. 23, no. 173; 'Seals', ch. 34, no. 11, 28, *a*, etc. Cf. pp. 110, 111 *supra*, 751 *infra*. (Pl. 195, *e*.)

8–9. These are similar to the foregoing, but without the gold-leaf. No. 8 (Bm. '24–811) has a diameter of 3 in. and no. 9 (Bm. '20–825) of 2·25 in. Both come from stratum II. (Pl. 171, *f*.)

Type *d*. *Also of thin flat metal, but cut into a running pattern.*

10. The only copper specimen of this type. Of first century date, from Sirkap. It has a diameter of 1·87 in. The pattern is a sort of running spiral, with heart and lozenge-shaped perforations in the middle. Sk. '19–787; Block D'; sq. 58·116'; stratum II. Cf. p. 190 *supra*; 'Jewellery', ch. 30, nos. 140–3. (Pl. 171, *g*.)

Type *e*. *Of more elaborate forms, largely in imitation of shell and glass bangles.* With one exception, they are all of copper, and come from both the Bhiṛ Mound and Sirkap.

11. This is the least elaborate. It comes from the second city in Sirkap, and has three simple ribbed mouldings on the outside. Diam. 2·37 in. Sk. '28–723; Block D'; sq. 58·116'; stratum II. Cf. p. 190 *supra*. (Pl. 171, *h*.)

Nos. 12–15, all show bead or bead-and-reel patterns, while in nos. 16 and 17, the former from the Bhiṛ Mound, the latter from Sirkap, the rather indeterminate decoration is closely analogous to that found on shell bangles. E.g. Pl. 201, no. 33.

12. A late example from the Kunāla monastery (fifth century A.D.) with an angular bead design. Diam. 2·8 in. Kun. '26–86. Cf. p. 352 *supra*. (Pl. 171, *i*.)

13. A heavy wrist-bangle, of Maurya date, from the Bhiṛ Mound, with bold bead-and-reel pattern in relief. Diam. 2·6 in. Bm. '20–446; sq. 33·27'; stratum II. (Pl. 171, *j*.)

14. A lighter specimen of Parthian date from Sirkap with beaded pattern. Diam. 2·8 in. Sk. '19–407; Block F'; sq. 89·90'; stratum II. Cf. p. 183 *supra*. (Pl. 171, *k*.)

15. A child's wrist-bangle, with beaded pattern from the Mohṛā Morādu monastery (fifth century A.D.). Diam. 1·85 in. Mm. '27–22, *a*; south-east of main stūpa. Cf. p. 363 (27) *supra*. (Pl. 171, *l*.)

TABLE SHOWING DISTRIBUTION OF COPPER, BRONZE AND LEAD OBJECTS IN SIRKAP

Block	Strata VI–V Greek	Stratum IV Early Śaka	Strata III–II Śaka-Parthian	Stratum I Surface
		EAST SIDE OF MAIN STREET		
I	—	—	—	—
A	—	—	2, 31, 265, 293, 309, 354, 361, 378, 379	252, *b*, 350, *b*
B	—	—	3, 255, 264, 301, 305, 334, 355, 384, 398, 429	254, 322
C	—	—	261, 299, 306, 327, 338, 376	—
D	—	—	—	—
E	—	252, *a*, 330, 427	36, 220, 246, 248, 263, 311, 332, 341, 366, 417	382
F	—	380	33, 35	—
G	—	17	6, 207, 249, 347–9, 359, 364	333
H	—	—	208, 211, *d*, 295	292
I	—	—	206, 311, *a*, 328, 428	—
J	—	—	317	—
K	—	—	223, 225, 312	421
L	—	—	373	—
		WEST SIDE OF MAIN STREET		
I′	—	—	395, 425	—
A′	— —	243, 371, 372	28, 37–102, 298, 396, 399, 400, 420	339, 391
B′	204, 304, *c*	388	25, 257, 321, 418	—
C′	259, 320, 323, 329, *a*, 345, *a*, 350, *a*	27, 227, 325	34, 219, 266, 346, 360, *a*, 397, 419	—
D′	—	324	10, 11, 103–203, 211, *b*, *e*, 224, 256, 258, 289, 291, 300, 302, 304, 308, *b*, 310, 313, 340, 360, *c*	331, 337, 392
E′	—	—	253, 260, 267, 271, 272, 278, *a–c*, 281, 282, 287, 290, 296, 303, 308, *a*, *b*, 326, 335, 336, 362, 365, 369, 377, 387, 408, 422	393
F′	—	—	14, 18, 29, 211, *a*, 274, 314, 315	—
G′	—	—	—	—
H′	—	—	—	—
K′	—	—	211, *c*, 222, 381	356
Main Street	—	283	32, 242	—
Seventh Street (east)	—	—	426	—
Sixth Street (west)	—	353	—	—

Note. Objects found in trial trenches or spoil earth or outside the city wall are not included in the above Table.

16. Child's bangle of light weight from the Bhiṛ Mound. Diam. 2 in. Post-Maurya period. Bm. '21–615; sq. 90·79'; stratum I. Cf. ch. 3, p. 111. (Pl. 171, *m*.)

17. Similar, of slightly larger dimensions, from the early Śaka stratum in Sirkap. Diam. 2·2 in. Sk. '26–3,960; Block G; stratum IV. (Pl. 171, *n*.)

Type *f*. *With medallion attached*.

18. A bracelet of first century A.D. from Sirkap, made of heavy round copper wire with medallion attached. Diameter of bangle, 2·5 in.; of medallion, 1·4 in. The medallion is adorned with a bust in relief of Dionysus or Silenus, holding a wine-skin on his left shoulder and pouring the wine into a fluted cup. Circling the bust is a bead-and-reel border, with countersunk depressions in the beads, probably intended for coloured paste or enamel. Sk. '33–255; Block F'; sq. 93·79'; stratum II. Cf. p. 182 *supra*. (Pl. 181, *a*.)

CLASS II. *Ear-rings* (nos. 19, 20). Cf. 'Jewellery', ch. 30, nos. 31–47

19, 20. There are only two examples of these ornaments in copper, one an ear-ring of the usual crescent-shape pattern from the Śaka-Parthian level in Sirkap (Sk. '14–376) and a second of the same pattern but smaller and thicker and datable some four centuries later, from the Kunāla stūpa (Sk. '14–Kun. 798). Both have a diameter of 0·5 in. Cf. p. 352 *supra*. (Pl. 172, *a*, *b*.)

CLASS III. *Pendants and brooches* (nos. 21–8)

Interesting examples of these have been found on both the Bhiṛ Mound and Sirkap sites. All are of copper and cast in moulds.

21. The earliest is a crescent-shaped copper pendant (diam. 1 in.), which dates from the fifth or fourth century B.C. On the face of the crescent, in the middle, is a small raised boss in a beaded circlet, and to right and left of it a stag, with a lizard in one horn of the crescent, a scorpion in the other. At the top, springing from the small boss, is a ringed projection for suspension. The crescent and animals no doubt have a talismanic value. The two stags with the circle between them call to mind the familiar Buddhist emblem, symbolic of the First Sermon, and the still earlier pair of deer associated with Śiva as *Mahāyogī*, which were probably adopted by the Buddhists from the popular religion of the day.[1] The crescent itself may well have developed out of the 'horns of divinity', a badge of specially sacred significance in early India, which was intimately connected with the Śiva cult and subsequently transformed by the Buddhists into the Trinity of the Three Jewels (*triratna*).[2] Bm. '21–264; sq. 21·59'; stratum IV. (Pls. 172, *c*; 181, *b*.)

22. No. 22 is also from the Bhiṛ Mound but of the Maurya period and, like most objects of that period, of singularly fine workmanship. It consists of a double row of 'arcading' surmounted by the forefronts of four bridled steeds, two turning to right and two to left, like the familiar steeds in the chariot of the Sun-god—a Greek motif early adopted into Indian art. (Cf. for example, *B.M. Cat. of Jewellery*, no. 2108).[3] The precise character of this ornament is not apparent, but it seems probable that it was a brooch. Its length is 0·75 in. Bm. '19–93; sq. 12·30'; stratum II. (Pl. 179, *a*.)

23. Hide-shaped pendant with linear patterns on both faces and loop at top for suspension. Length 0·68 in. The 'hide' motif formed by four tangent circles is a very familiar one in early Indian art, but whether it was supposed to be invested with a talismanic value is not known. This pendant comes from the Bhiṛ Mound and is of Maurya date. Bm. '21–1,477; sq. 48·126'; stratum II. (Pls. 172, *d*; 179, *b*.)

[1] *M.I.C.* I, pp. 53, 55.

[2] *Ibid.* pp. 54, 55.

[3] Better-known examples are on the silver-gilt dish from Elis in the British Museum, which dates from *c*. 300 B.C. (F. H. Marshall in *J.H.S.* XXIX, p. 160; Mrs A. Strong, *Apotheosis*, p. 38, etc.) and the one on the Igel Column near Trier (Espérandieu, *Recueil*, VI, p. 457). The latter is of Roman date. Cf. also the Bactrian tetradrachms of Plato, *c*. 165 B.C.

24. Heart-shaped pendant of curious cloisonné-like technique. Length 1·25 in. The pendant is made of copper gilt, divided into round cloisons, in each of which is a minute disk of mica fixed into a bed of lac and once, probably, backed by some colour. This perhaps is how the cloisons in the border of no. 18 were filled. Although this pendant was found on the Bhir Mound, its design and workmanship suggest that it was of Parthian date. Bm. '21–953; sq. 43·100'; stratum I. Cf. p. 111 *supra*; *A.S.R.* (1920), Pl. XVII, 28. (Pls. 172, *e*; 181, *c*.)

25. Bell-shaped copper pendant from Sirkap, with seven oval holes pierced round the walls of the bell. Height 1·0 in. Sk. '29–205; Block B'; sq. 37·83'; stratum III. (Pls. 172, *f*; 179, *c*.)

26. Pendant in the form of a miniature mirror, with ring at top between two birds facing each other. Height 0·87 in. The mirror is of typical Greek design; the birds probably doves. From outside the city wall of Sirkap; date uncertain. Sk. '19–4. Like the pair of fishes of no. 28 below, the mirror was one of the *Ashṭamaṅgala* signs and invested with amuletic value, but at what period it acquired this value is not known. Cf. A. Coomaraswamy, 'Notes on Indian Coins and Symbols' in the *Ostasiatische Zeitschrift*, Neue Folge IV, Heft 4, Tafel 29, figs 23, 24 and p. 185, fig. H, *a*, where, however, the form of the mirror is much conventionalised. (Pls. 172, *j*; 179, *d*.)

27. Pendant of bronze from Sirkap. Early Śaka period. Length 1·37 in. The motif is the same as in the preceding but the design simplified, and the ring is attached to the handle of the mirror instead of to its top. Sk. '14–2,135; Block C'; sq. 42·74'; stratum IV. (Pls. 172, *g*; 179, *e*.)

28. Pendant from Sirkap in the form of a pair of fishes hanging side by side from a tiny ring. Height 0·75 in. Sk. '20–5; Block A'; sq. 24–82'. A pair of fishes is one of the *Ashṭamaṅgala* signs, so frequent on Jaina monuments, and of well-known amuletic value. See the *Āyāgapaṭa* slab, 'Terra-cottas', ch. 24, no. 56 and 'Gold and Silver Jewellery', ch. 30, nos. 78 and 79; and for other examples, see A. Coomaraswamy, 'Notes on Indian Coins and Symbols' in the *Ostasiatische Zeitschrift*, Neue Folge IV, Heft 4, Tafel 29, figs. 23, 24, 25 and p. 185, fig. H, *e*. Cf. p. 195 *supra*. (Pls. 172, *h*; 179, *f*.)

CLASS IV. *Buckles, clasps, etc.* (nos. 29–36)

All objects of this class come from the Śaka-Parthian city in Sirkap; it is doubtful if buckles such as no. 29 were known in India at an earlier date. Nos. 30 and 31 are of bronze, the rest of copper.

29. Copper buckle with movable spike, as in the modern buckle. Length 1·06 in. Sk. '17–393; Block F'; sq. 91·81'; stratum II. Cf. p. 183 *supra*. (Pl. 172, *i*.)

30. Bronze ornamental clasp, with dot-and-comma cloisons on each side. One cross-bar broken. Length 1·37 in. The cloisons were doubtless inlaid with stone, paste or mica (cf. no. 24). Sk. '14–2,488; spoil earth. (Pl. 172, *m*.)

31. Bronze ornamental buckle in the form of a modified *nandipada* with three pear-shaped cloisons in middle for inlay-work. Length 1·37 in. At the back is a small ring by which it could be fixed to a belt. Sk. '16–147; Block A; sq. 20·59'; stratum II. Cf. p. 146 *supra*. (Pl. 172, *n*.)

32. Circular buckle of copper with transverse bar. Diam. 0·81 in. Sk. '15–90; Main Street; sq. 86·73'; stratum III. (Pl. 172, *k*.)

33. Copper buckle (?) ornamented with plant bearing two five-petalled flowers, within raised border. Size 1·5 × 1·37 in. Sk. '26–2,702; Block F; sq. 91·48'; stratum III. Repoussé. Cf. Pl. 180, no. 113 for shape. (Pl. 181, *d*.)

34. Rectangular buckle or brooch, with acanthus border enclosing winged dragon. 1·18 × 0·87 in. Sk. '29–328; Block C'; sq. 48·90'; stratum II. Cf. p. 193 *supra*. (Pls. 172, *l*; 181, *e*.)

35, 36. These two small articles, which appear to have served as personal ornaments of some kind, came from Sirkap and belong to the Parthian period. They consist of three small circles, hollow in the centre. In no. 35, which measures 1·62 in. across, the circles are round in section

and plain. Sk. '13–550; Block F; sq. 93·59'. In no. 36, which measures 1·87 in. across, there are broken projections on the outer rim of two of the circles, and between the circles is a trilateral spacer with cloisons for inlay. Sk. '13–1,295; Block E; sq. 72·52'; stratum II. Cf. pp. 162, n. 1, 166; *A.S.R.* (1912), Pl. XXIV, *a*, 8 and *b*, 13. (Pl. 172, *o*, *q*.)

CLASS V. *Groups of dies for personal ornaments* (nos. 37–203)

The pieces described below were found in two groups in the Śaka-Parthian city —one (Sk. '29–24) in Block 2A'; sq. 27·90'; stratum II (cf. p. 195 *supra*); the other (Sk. '19–790) in the 'House of the Jeweller' in Block D', sq. 58·116', in a room next to the one in which another valuable collection of objects was unearthed (p. 189 *supra*, Deposit G).

The former (A) number 66, the latter (B) 102. The two groups bear a close resemblance to one another, both in the character of the pieces and in their designs, but it is noteworthy that, whereas in Group A most of the pieces are of solid metal, in Group B a considerable number (e.g. nos. 104–9, 112–21, 123–6) are stamped out of sheet-metal. It is also noteworthy that in each group scarcely any two pieces are exactly alike. From this it may be inferred that they were not being fashioned as actual ornaments; for had that been so, we may be sure that there would have been some replicas of the same size and pattern—particularly among the necklace beads, pendant buds and the like—just as there are among the finished gold and silver ornaments found in other groups. At one time I assumed that the solid pieces were intended for inlay-work, but it is now clear to me that their real use was as dies on which sheet-metal of gold, silver, copper or bronze could be hammered out with the help of punches and converted into articles of jewellery. Stamped ornaments for the same purpose were likewise made, as I elsewhere show (ch. 30, p. 617), by pressing metal sheeting into stone moulds, but ornaments made in this way had to be of the thinnest material and were incapable of standing any degree of wear and tear, whereas those made on dies with the aid of hammers and punches were much more durable. The other pieces which are made of sheet-copper (e.g. nos. 104–9, 112–21, etc.) have been hammered out on the solid dies either as experimental tests, preparatory to fashioning the same ornaments in gold or silver, or themselves to be cut, trimmed and finished into actual ornaments. They may also have been used as moulds for casting cheap ornaments of faience or paste such as were common at this period in the Panjāb and North-West (e.g. *A.S.R.* 1902–3, Pl. XXVIII, *b*, 3).

The various kinds of ornaments which could be stamped out on these dies are easy to recognise. The double-crescent beads (Pl. 179, nos. 37, 38, 40, 41; Pl. 180, nos. 106–8; and Pl. 181, nos. 168–76), are of the type used in the gold necklace no. 76 ('Jewellery', ch. 30), and in the faience necklace referred to above (*A.S.R.* 1902–3, Pl. XXVIII, *b*, 3); others, formed of a row of tangent circlets (nos. 42–4, 195–6), have their counterpart in the gold necklaces nos. 60, 61. Others of the familiar spearhead-and-drop pattern (nos. 46, 47, 50, 51, 120) are the same as those in the gold necklace no. 62 (*q.v.*), while the stepped-merlon bead no. 48 is identical with the beads of the gold breast-chain no. 75. The bud-pendants nos. 52, 73 and 121–6 resemble the bud-pendants on the leech-and-pendant gold ear-rings nos. 9–25, and the small heart-shaped or

leech ear-rings nos. 76–8 and 180–6, may be compared with the gold specimens nos. 36–46 and 48–51. Similar small leech-rings are also used in the clasps of the leech-and-pendant ear-rings referred to above. The disks nos. 86 and 101—one adorned with a spoked *dharmacakra*, the other with a lotus rosette—may have been used as girdle or necklace medallions (e.g. 'Gold and Silver Jewellery', ch. 30, no. 78; cf. *B.M. Cat. of Jewellery*, nos. 2737, 2945) or perhaps as *bullae*, like the terra-cotta specimens nos. 128–31. The small rings with two dolphins *affrontés* (nos. 91, 92) are identical in all respects with the encrusted pendants in the gold necklace no. 56 (cf. *B.M. Cat. of Jewellery*, nos. 2626–7). The crescents nos. 99 and 100 were probably intended for leech-and-pendant ear-rings like the gold ones no. 9–25, though crescents were used for many other ornaments as well (e.g. *B.M. Cat.* p. xlvi and nos. 2718, 2720, 2743). Fishes, like nos. 79 and 109 (Pl. 172, *r*), are found in the gold girdle no. 78, and the double-knots no. 178 and 194 (*nodus Herculeus*) in the clasps of many Greek and Graeco-Roman necklaces and belts (e.g. *B.M. Cat.* nos. 1607–9, 2001). To match S-shaped pieces nos. 191–3, we need look only at the four gold bracelets nos. 140–3, where similar pieces are soldered together in such a way as to produce a repeat of the familiar Greek ivy-leaf pattern, in this case also forming the equally familiar Indian 'shield' device (cf. *B.M. Cat.* no. 2824, and for the S-motif used alone, no. 2735).

The purpose of the comma-like devices and their fish-headed variants nos. 95, 97, 151–61 is not so patent. The 'comma' and 'dot-and-comma' were favourite motifs in Scythic ornament (Dalton, *Treasure of the Oxus*, pp. 30–2), but these particular dies were probably used for fashioning 'ring-and-head' ear-rings akin to the familiar 'ring-and-head' ear-rings of the Greeks (e.g. *B.M. Cat.* nos. 1732, 1780, 1806–8, etc.). The die would be used only for making the head and body of the ear-ring, the wire tail being drawn without difficulty out of the metal.

Of other designs among these pieces the following are noteworthy:

Nos. 53–5 (Pl. 179). Three scallop-shaped palmettes of different patterns, intended probably for a scale repeat similar to that on the gold and turquoise ornaments nos. 167, 168.

Nos. 60, 62, 74, 90 (Pl. 179). Vine and acanthus leaves. Both motifs are derived, like the preceding, from Graeco-Roman art, and are frequently met with in the North-West of India. Cf. no. 399 *infra*, and for a specimen of the former from Begrām in Afghānistān, cf. Hackin, *Recherches Archéologiques à Begram*, Chantier 2 (1937), no. 215 and Pl. xx, fig. 46.

63. Bow-spiral motif. Also common in Greek and Graeco-Roman art. (Pl. 179.)

87, 111, 141. Miniature heads and full-length figure (?Eros) in relief. (Pls. 179; 180.)

88, 102. Classical 'sheaf' pattern bound in middle and commonly alternating with rosettes. (Pl. 179.)

98, 114. Horned lion-masks with rings in mouth and inlaid ears. These are copies of the Greek horned lion-masks, frequently holding rings in their mouths, which serve as terminals for ear-rings, necklaces, bangles, etc. (e.g. *B.M. Cat. of Jewellery*, nos. 1610, 1782–4, 1826, 1964–7, etc.). From them appear to be derived the *kirttimukha* masks which figure so prominently in medieval and later Indian art. (Pls. 172, *s*, *ss*; 179, no. 98; 180, no. 114.)

115. Spread-eagle buckle of copper. On the clasp, above each wing, is a leaf-shaped cloison for stone or paste inlay, and surmounting it a bunch of three leaves. On back of bird, seven other cloisons, one lozenge-shaped, two comma-shaped, one oblong and three (in tail-feathers) club-shaped. The wings are edged with a rough beading. At the back are two small hoops for attachment. The design is probably Sarmatian. Cf. Odobesco, *Le Trésor de Petrossa*, pt. II, p. 51, fig. 12; Dalton, *Treasure of the Oxus*, p. lvi, fig. 35. Sk. '19–613; sq. 58·115'; stratum II. (Pls. 172, *t*; 180, no. 115.)

117. *Nandipada* motif (wheel and *triratna*). Cf. no. 31 *supra* and 'Gold and Silver Jewellery', ch. 30, nos. 101, 147. (Pl. 180, no. 117.)

127–9, 203, *a*. Oval and square bezels of finger-rings with box settings. (Pls. 180, nos. 127–9; 181, no. 203, *a*.)

142. Two birds back to back on bunches of fruit or berries. (Pl. 180.)
177, 187. Peacocks (?). (Pl. 181.)

GROUP B. TOILET ARTICLES

CLASS VI. *Unguent pots and bowls* (nos. 204–7). Cf. 'Pottery', ch. 23, Class III; 'Stone', ch. 25, Class XII; 'Silverware', ch. 29, Class II

The long-necked flask of type *a* is from the Greek city in Sirkap; the tripod bowls and flasks of type *b* are all from the Parthian city on the same site.

Type *a*. *Long-necked flask on standard base.*

The only example of this type of unguent flask is no. 204, from the Greek stratum in Sirkap. It is 5·5 in. in height, and provided with a high, flared base, and a wide projecting rim. The body is damaged. Sk. '29–2,010; Block B'; sq. 38·87'; stratum V. For the lead filling, cf. Analysis Table VI, p. 569, no. 36. (Pl. 171, *o*.)

Type *b*. *Tripod bowls and flasks.*

205. Bowl with bead-rim, on three curved legs. Height 2·62 in. Sk. '27; Trench D11; stratum II. Cf. p. 197 *supra*. (Pl. 171, *p*.)

206. Miniature bowl of bronze with flat horizontal rim and three angular legs. Diam. 1·31 in. Sk. '26–355; Block I; sq. 134·65'; stratum II. Cf. p. 171 *supra*. (Pl. 171, *s*.)

207. Miniature flask on three straight legs; bead-moulding round middle of body, and lotus-pattern round shoulder. Height 2·25 in. Sk. '26–2,215; Block G; sq. 110·52'; stratum II. Found in the same group with nos. 249, 333, 349, 359, 364, etc. See vol. 1, p. 168. Another specimen, similar to the above but with curved legs, has the upper part of the body broken. Sk. '27; Trench D79; stratum II; hollow cast. (Pl. 171, *t*.)

CLASS VII. *Mirrors* (nos. 208–11, *f*)

These are found only in the Śaka-Parthian city in Sirkap and are clearly copied from Western prototypes (Gr. ἔνοπτρον, κάτοπτρον). They consist of a circular disk from 2·18 to 6·5 in. in diameter, furnished with a tang at the base which fitted into a bone, ivory or wooden handle. The face of the mirror is smooth and slightly convex, the back sometimes plain, but more frequently relieved with a broad wavy rim and a raised boss or *omphalos* in the centre. None of these mirrors are decorated with the incised or repoussé figures so often found on Greek mirrors, but the miniature mirror pendant (no. 26 *supra*), with two birds facing each other on the rim, is a typically Greek pattern (cf. Dar. et Sag. fig. 6529). The metal of the Taxila mirror is copper, not bronze, but it is probable that the surface of the metal was treated with some preparation, perhaps with mercury, that gave it a silvery lustre. Mirrors of brass are still manufactured in the Travancore State by a process which makes them as effective as the highly polished steel mirrors in use during the two World Wars. For mirror handles, see 'Bone and Ivory Objects', ch. 32, nos. 43–56 (Class VIII). The following are typical examples.

208. Circular copper mirror, with bone handle, found separately. Length 8·25 in.; diam. 4·75 in. The face of the mirror is slightly convex. At the back, a broad raised rim runs round the edge, and in the centre is a raised boss or *omphalos* like the bosses in the *phialai mesomphaloi* (see below, no. 289, and 'Silverware', ch. 29, no. 10), only shallower. At the base of the mirror is a tang, 1·6 in. in length, which was socketed into the bone handle. The handle (Pl. 199, no. 55)

is roughly decorated with incised bands. Sk. '15–514; Block H; sq. 125·68'; stratum II. Cf. p. 170 *supra*. (Pl. 182, *a*.)

209–10. Similar to preceding, but with wavy rim at back and without handles. In no. 209 the circumference as well as the face of the rim is waved; in no. 210, the circumference is plain. Length of no. 209 including tang, 7·75 in.; of no. 210, 8·25 in. From the Mahal site in Sirkap. Ml. '20–91/23; sq. 63·84'; 2 ft. 6 in. below surface. A similar mirror, said to be of Suṅga date, was found on the Bulandi Bāgh site near Patna and is now in the Patna Museum (Reg. no. 158). For other objects from same hoard, see p. 215 *supra*. (Pl. 181, *f*.)

211, *a*. Similar, but only 2·18 in. in diameter, and with less pronounced *omphalos* and rim. Sk. '28–1,941; Block F'; sq. 84·84'; stratum II. Cf. p. 183 *supra*.

211, *b–f*. Other mirrors of the same kind are Sk. '19–933 (sq. 59·114');[1] Sk. '15–405 (sq. 160·101') and 418 (sq. 125·68'); Sk. '20–762 (sq. 57·92') and Sk. '20–Ml. 91/25 (sq. 63·84'). Cf. pp. 180, 188, Deposit E (4) *supra*. (Pl. 182, *b*.)

CLASS VIII. *Antimony- or kohl-rods, toothpicks and ear-cleaners* (nos. 212–25)

Antimony-rods of bone, ivory, copper or bronze occur at Taxila from the third or possibly fourth century B.C. and were probably introduced there by the Greeks.[2] They had been in use in Egypt from early times and were common in the Roman world. See, for examples, Flinders Petrie, *Objects of Daily Use*, Pl. XXIII, 26 and 27 (Egyptian XVIII and XIXth Dynasties) and nos. 45–50 (Roman). At Taxila, the earliest pattern (type *b*) which is found on the Bhir Mound, consists of an antimony-rod and ear-cleaner combined. At a later date we have the simple antimony-rod with both ends clubbed (type *a*), the antimony-rod and toothpick combined (type *c*), and the ear-cleaner and toothpick combined (type *d*). These three types occur from the first century A.D. onwards. Cf. 'Bone and Ivory Objects', ch. 32, Class VII.

Type *a*. *Antimony-rods with both ends clubbed.* Like the contemporary Roman ones, these average from 4 to 6 in. in length—longer than the older Egyptian specimens. They have been found only in the Śaka-Parthian city on Sirkap and on later sites.

212–14. No. 212 (Sk. '13–80; stratum II) is of bronze, 5·37 in. in length and clubbed at both ends. No. 213 (Sk. '15–45; stratum II) is of copper and 4·25 in. long. No. 214 (Dh. '15–276) which comes from the Dharmarājikā site and may be later, is also of copper and twisted in the middle. Its length is 4·75 in. Cf. p. 205 *supra*. (Pl. 173, *a–c*.)

215–16. Here may be mentioned also two club-ended antimony-rods made of lead instead of copper or bronze. No. 215 (Sk. '13–1,324) is 4·25 in. long, and no. 216 (Sk. '13–1,224) 5·12 in. long; both from stratum II. In the latter specimen the middle is thicker than the ends. (Pl. 173, *d*, *e*.)

Type *b*. *Antimony-rod and ear-cleaner combined.* These date from the fourth and third centuries B.C. and are not found in later times.

217. Copper rod, rounded at one end for applying antimony to the eyes, and with a small scoop at the other end for cleaning the ears. Length 4 in. Bm. '19–1,792; sq. 9·41'; stratum III. Cf. p. 103 *supra*. (Pl. 173, *f*.)

[1] From the same hoard in Block D' as nos. 291 (*q.v.*), 310, 313.

[2] Certain copper rods found on the prehistoric site of Mohenjo-daro may have been used for a similar purpose, but it is doubtful. *M.I.C.* II, pp. 504–5 and Pl. CXLIII.

218. Similar, length 4·5 in. Also from the Bhir Mound. Bm. '21–897; sq. 45·130'; stratum II. Cf. p. 107 *supra*. (Pl. 173, *g*.)

Type *c*. ***Antimony-rod and toothpick combined.*** Found only in the Śaka-Parthian city in Sirkap (first century A.D.).

219. Copper rod, clubbed at one end, pointed at the other. Length 6·06 in. Sk. '14–1,601; Block C'; sq. 43·79'; stratum II. Cf. p. 193 *supra*. (Pl. 173, *h*.)

220. Similar, length 4·06 in. Sk. '13–1,357; Block E; sq. 72·60'; stratum II. (Pl. 173, *i*.)

221. Similar, but decorated near the clubbed end. Length 4·5 in. Sk. '27; Trench D100; stratum III. (Pls. 173, *j*; 182, *n*, 5.)

Type *d*. ***Ear-cleaner and toothpick combined.*** This is the ὠτογλυφίς of the Greeks, the *auriscalpium* of the Romans. Dar. et Sag. I, p. 572, *s.v.* 'Auriscalpium'. Similar articles made of bone or ivory are described under 'Bone and Ivory Objects', ch. 32, Class VII. All come from the Śaka-Parthian city in Sirkap.

222. Bronze; 5·18 in. long. Sk. '15·338; Block K'; sq. 162·108'; stratum II. Cf. p. 180 *supra*. (Pls. 173, *k*; 182, *n*, 2.)

223. Copper; 4·87 in. long. Sk. '14–260; Block K; sq. 183·57'; stratum II. Cf. p. 177 *supra*; *A.S.R.* Pl. XXIV, 28. (Pls. 173, *l*; 182, *n*, 3.)

224. Copper; 4·25 in. long. Sk. '27–10; Block D'; sq. 58·122'; stratum II. Cf. p. 190 *supra*. (Pls. 173, *m*; 182, *n*, 4.)

225. Copper; 4·87 in. long. Sk. '14–90; Block K; sq. 162·68'; stratum II. Cf. p. 177 *supra*. (Pls. 173, *n*; 182, *n*, 6.)

CLASS IX. *Hair-pins* (nos. 226–39). Cf. 'Jewellery', ch. 30, Class VI; 'Bone and Ivory', ch. 32, Class VI

The hair-pins figured in Pls. 53 and 62 are all of copper and, with two exceptions, come from the Śaka-Parthian city in Sirkap. One of these exceptions (no. 226 *infra*) comes from the Bhir Mound and is assignable to the third to second century B.C.; the other (no. 227) is from one of the earlier strata in Sirkap and assignable to about a century and a half later. The heads of these hair-pins exhibit a great variety of devices

226. Hair-pin with trident head, the prongs of which terminate in *nandipada*, *vajra* and axe(?). Length 4 in. Bm. '20–176; sq. 35·62'; stratum II. (Pls. 173, *o*; 182, *p*, 6.)

227. Ditto with figure of Aphrodite on head. Length 2·12 in. Sk. '29–2,917; Block C'; sq. 45·94'; stratum IV. Hair-pins of this type, made of metal, ivory or bone, were common in the Graeco-Roman world. Cf. Brit. Mus. Ivory no. 101; Flinders Petrie, *Objects of Daily Use*, Pl. XIX, 30, 64. (Pl. 173, *y*.)

228. Similar. Length 3·3 in. Sk. '27; Trench G51; stratum II. Cf. *A.S.R.* (1927–8), p. 62, no. 3. (Pls. 173, *p*; 182, *c*.)

229–39. Of the pins from the Śaka-Parthian city figured in Pl. 182, nos. *p* 1–16, no. *p* 1 has a heart-shaped head; *p* 2, a nail head; *p* 3, a cube-and-bead head; *p* 5 and *p* 7, globular heads; *p* 8, a discoid head inlaid with ivory; *p* 10, a butterfly(?) head; *p* 11, 13 and 16, inverted crescent heads; and *p* 14, a ball head with wings.[1]

[1] Pl. 182, *p* 1 = 173, *q*; 182, *p* 2 = 173, *r*; 182, *p* 3 = 173, *s*; 182, *p* 5 = 173, *t*; 182, *p* 7 = 173, *u*; 182, *p* 8 = 173, *v*; 182, *p* 10 = 173, *aa*; 182, *p* 12 = 173, *y*; 182, *p* 13 = 173, *w*; 182, *p* 14 = 173, *x*; 182, *p* 15 = 173, *p*; 182, *p* 16 = 173, *bb*.

CLASS X. *Antimony- or kohl-phials and stoppers* (nos. 240–51)

Phials for antimony or kohl were usually made of copper or bronze, but one example has been found of stone ('Stone Objects', ch. 25, no. 59, *a*). In ancient Egypt they were ordinarily made of stone, wood or bone. The earliest, from the Bhiṛ Mound, consist of a plain tube of metal, 4–5 in. in length and tapering slightly upwards, with a stopper in the form of a stūpa dome or humped bull. In the later examples from Sirkap the body of the phial is carinated towards the bottom, the neck is somewhat narrow, and the stoppers are frequently surmounted by a cock or peacock, though the humped bull still remains in vogue. A still later type is probably furnished by the vase-like specimen, no. 244, from the Dharmarājikā Stūpa, though it is questionable whether this was used for antimony.

240. Antimony phial of hammered bronze, 4 in. high, hexagonal in section, with stopper in form of stūpa dome. Bm. '15–283; stratum II. (Pl. 173, *dd*.)

241. Ditto of hammered copper, 5 in. high, circular in section, with base soldered on. The stopper takes the form of a crudely fashioned humped bull, the head of which is broken. Bm. '30–581; sq. 32·67'; stratum II. (Pls. 173, *ee*; 182, *d*.)

242. Ditto of hammered bronze, 4·27 in. high, with twelve-sided carinated body, saucer-like base, and stopper in the form of a peacock with a flat tail.[1] The body is soldered together and encircled with a beaded moulding at the point of carination, and is also soldered on to the base. Sk. '14–298, 306; Main Street; sq. 56·72'; stratum III. Cf. p. 205 *supra*. (Pls. 173, *ff*; 182, *e*.)

243. Similar to the preceding. Height 3·12 in. Sk. '29–2,647; Block A'; sq. 24·92'; stratum IV; first century B.C. (Pl. 182, *f*.)

244. Phial of cast copper; height 2·12 in., with body in the form of a vase adorned with formal lotus leaves. Date uncertain. Dh. '16–995; debris, east of O–4. (Pl. 173, *z*.)

245–51. The seven stoppers illustrated in Pl. 182 come from stratum II of Sirkap and are of the first century A.D. All are made of cast metal, nos. 246 and 248 (from Block E) of bronze, the rest of copper. Nos. 245 and 247 represent peacocks, no. 246 and 248 cocks and nos. 249–51 (Block G) humped bulls. Cf. pp. 146, 162 (13), 168 (5), 193, 205 *supra*. (Pl. 182, *g–m*.)

CLASS XI. *Jewel caskets* (nos. 252–4). Cf. 'Stone Objects', ch. 25, Class XV

Caskets made of metal, stone, ivory and earthenware appear to have been used, like the Greek *pyxis*, for keeping jewels and trinkets in, and naturally came to be employed by the Buddhists as the most convenient and suitable type of receptacle for enshrining sacred relics in their stūpas, particularly as such relics were usually accompanied by some precious stones, coins or other objects of value. Unless, therefore, a casket of this kind has been actually exhumed from a stūpa, it is in some cases difficult to decide whether it served a religious or a mundane purpose. Indeed, it is quite likely that some of the caskets found in stūpas may originally have been used as ordinary jewel-boxes. In other cases it is evident from the shape or decoration of the caskets themselves (e.g. Pl. 35, *f–h*) that they were specifically made for the reception of sacred relics.

Of the specimens described below, no. 253 is of bronze; the other two of copper.

[1] The stopper is not shown in the illustration in Pl. 182, *e*.

No. 254 is of hammered metal; nos. 252, *b* and 253 of cast metal. No. 252, *a* is of the Early Śaka period; the others of the Parthian period (first century A.D.).

252, *a*. Casket of beaten copper; cylindrical body, torus base moulding, and domical lid attached by chain. Height 3·25 in. Probably first century B.C. Sk. '14–1,121; Block E; sq. 75·65'; stratum IV. Found with no. 330 and near no. 427. Cf. p. 134 *supra*. (Pl. 36, *d*.)

252, *b*. Cylindrical casket of cast copper, adorned with a row of human-masks enclosed in swags. Height 3·5 in. The design is characteristically Hellenistic and perhaps borrowed from the round altar decorated with swags. Cf. *B.M. Cat. of Silver Plate*, nos. 23, 119; *Arch. Jahrbuch*, v (1890), pp. 134, 137; Dar. et Sag. I, p. 350, *s.v.* 'Ara'. The lid is missing but the ring to which the lid chain was attached is preserved. First century A.D. Sk. '20–866; Block A; sq. 20·43'; stratum I. Cf. p. 146 *supra*. (Pls. 171, *q*.; 182, *o*.)

253. Casket of heavy cast-bronze. The finial crowning the lid terminates in a bud with four bud-like projections around. Height 6 in. First century A.D. Sk. '13–1,792; Block E'; sq. 74·76'; stratum II. Cf. p. 185 *supra*. (Pls. 171, *r*; 183, *a*.)

254. *Pyxis*-like casket of copper, with flat lid and handle. Diam. 3·75 in. First century A.D. Sk. '24–219; Block B; sq. 34·48'; stratum I. Cf. p. 148 (4) *supra*. (Pl. 171, *u*.)

GROUP C. HOUSEHOLD VESSELS

CLASS XII. *Cooking-pots and cauldrons akin to the modern* haṇḍī *and* deg (nos. 255–8)

Vessels of this kind have been found only in the Śaka-Parthian city on Sirkap and are referable to the first century A.D. They correspond in metal to the pottery vessels, Class IX, type *c*, and in every case are of hammered copper.

Type *a*. Ghaṛa-*shaped, with rim more or less everted and with or without ring-handles.*

255. Cooking-pot of hammered copper made in two pieces, riveted together at the shoulder. Rim sharply everted. Height 9·62 in. First century A.D. Sk. '16–1,000; Block B; sq. 32·61'; stratum II. Cf. p. 148 *supra*. (Pl. 174, no. 255.)

256. Similar, but with almost vertical neck, small lip, and two ring-handles on shoulder. Height 8·5 in. The base is damaged. Sk. '27–1,539; Block D'; sq. 61·118'; stratum III. Cf. p. 190 *supra*. (Pl. 174, no. 256.)

Type *b*. *Carinated bell-shaped vessels, with or without spout.* For shape, compare 'Pottery', ch. 23, Class IX, type *d* and Class XI.

257. Bell-shaped cooking-pot with everted neck and rim, carinated at shoulder and base. It is made in two sections riveted with studs a little above the middle. Height 11·25 in. First century A.D. Sk. '20–211; Block B'; sq. 28·84'; stratum II. Numbers of vessels of this shape have been found in the Śaka-Parthian city in Sirkap. The largest one is about 2 ft. in height. Cf. p. 194 *supra*. (Pl. 174, no. 257.)

258. Similar, but with spout riveted on to the shoulder. Sk. '28–1,038; Block D'; sq. 63·105'; stratum II. Cf. p. 190 *supra*. (Pl. 174, no. 258.)

CLASS XIII. *Handled jugs and ewers* (nos. 259–65). Cf. 'Pottery', ch. 23, Classes XII, XIII

The metal jugs with handles are of two types: (*a*) the traditional Indian vessel with loop handle at top and erect spout, and (*b*) vessels of Graeco-Roman form with

a single handle at the side. Specimens of the former type have been found in the Indo-Greek and later strata in Sirkap (second century B.C. to first century A.D.). Vessels of the second type have been found only in the Śaka-Parthian city in Sirkap and are referable to the first century A.D.

Type *a*. *Spouted vessel with loop handle on top.*

259. This vessel from the Greek city is of cast copper, with the vertical spout, loop handle and splayed base soldered on. The handle is decorated with the familiar bead-and-reel device, derived from Hellenistic art. Height 9·75 in. Second century B.C. Sk. '20–216/1; Block C'; sq. 47–48·95'; stratum V. For other articles found along with it, cf. nos. 320, 323, 327, 329, *a*, 345, *a*, 350, *a*, *infra*; and see ch. 4, p. 125. (Pls. 174, no. 259; 183, *b*.)

260. Similar, with plain handle and shorter spout. Height 8·12 in. First century A.D. Sk. '22–510; Block E'; sq. 73·90'; stratum II. Cf. p. 185 *supra*. (Pl. 174, no. 260.)

Type *b*. *Handled jugs and ewers of Hellenistic pattern.*

261. Jug of cast copper, with narrow neck, slightly pointed mouth, and handle at side connecting the shoulder with the rim. Height 7·25 in. The handle is relieved with scroll devices, and there is a second false base soldered on. First century A.D. Sk. '24–714; Block C; sq. 46·43'; stratum III. Cf. p. 149 (3) *supra*. (Pls. 174, no. 261; 183, *c*.)

262. Similar, but with wide neck, open mouth and pear-shaped body. Height 5·25 in. At the base of the handle is a bearded Dionysiac mask showing archaistic traits. First century A.D. Ml. '20–91/3; sq. 63·84'; 2 ft. 6 in. below surface. For the shape, cf. Louvre, 2691 (De Ridder, Pl. XCVIII); Schreiber, *Alexandrinische Toreutik*, figs. 82, 96, *B.M. Cat. of Silver Plate*, no. 147; and for the mask, Louvre, 2803 (De Ridder, Pl. CI) and Schreiber, *op. cit.* fig. 105. For other objects from the same hoard, cf. p. 215 *supra*. (Pls. 174, no. 262; 183, *d*.)

263. Copper ewer with domical lid attached by chain, and conventionalised dolphin handle. Height 13·25 in. First century A.D. The body of the vessel is of hammered metal; the handle is cast and riveted on. For the shape, cf. Louvre, 2974 (De Ridder, Pl. CV). The dolphin handle is common on late Hellenistic vessels. Sk. '13–1,287; Block E; sq. 69·59'; stratum II. Cf. p. 161 (9) *supra*; *A.S.R.* (1912), Pl. XXIII, *d*. (Pl. 174, no. 263.)

264. Similar, but with longer neck and squat body, and more naturalistic handle. Height 9·87 in. The vessel is made in two sections riveted at the base of the neck. Lid and chain missing. Sk. '16–889; Block B; sq. 33·60'; stratum II. Cf. p. 148 *supra*. (Pl. 174, no. 264.)

265. Similar to preceding, but lid and chain preserved. Height 13 in. Sk. '20–756; Block A; sq. 26·45'; stratum II. Cf. p. 146 *supra*. (Pl. 183, *f*.)

CLASS XIV. *Standard drinking cups, goblets and beakers* (nos. 266–73). Cf. 'Pottery', ch. 23, Class XIV; 'Stone', ch. 25, Class XIII; 'Silverware', ch. 29, Class III

Metal drinking vessels of this class have been found only in the Śaka-Parthian city on Sirkap (first century A.D.). They are of three types:

Type *a*. *Standard cup or bowl with or without lid.*

266. Standard cup of hammered copper, with cast base of same metal. Height 2·87 in. Sk. '27–1,019; Block C'; sq. 47·96'; stratum II. Cf. p. 193 *supra*. (Pl. 174, no. 266.)

267. Similar, but provided with a flat projecting rim. The base, which is higher and more elaborate than in the preceding example, is made in two pieces soldered together. Height 3·75 in. Sk. '22–645; Block E'; sq. 67·113'; stratum II. From same hoard as nos. 272, 278, *a–c*, 281, 282, 287, *a*, *b*, 290, 296, 303, 308, *a*, *b*, 362. Cf. vol. I, p. 184. (Pl. 174, no. 267.)

268. Similar, with lid surmounted by finial handle. The lid is pivoted on to the rim by means of a rivet, so as to swing round horizontally. The base and finial are cast, the rest hammered metal. Height 5·87 in. Sk. '29–1,614/2; Block C'; sq. 44·96'. Cf. no. 325, which is from the same find. (Pls. 174, no. 268; 183, *g*.)

Type *b*. ***Standard beakers or goblets***. These are counterparts in metal of the earthenware vessels described in 'Pottery', ch. 23, Class XIV, *c*.

269. Standard beaker of copper, with plain flared sides. Height 7 in. The base is cast, the body of the vessel hammered. Ml. '20–91/16; sq. 63·84'; 2 ft. 6 in. below surface. This resembles the favourite standard beaker of earthenware, which is found in all the Sirkap strata down to the bottom. Cf. 'Pottery', no. 89 and p. 215 ***supra***. (Pl. 174, no. 269.)

270. Similar and from same hoard, but with neck incurved above cordon moulding and flared mouth. Made of thick cast (?) copper. Height 4·12 in. Ml. '20–91/18. (Pl. 174, no. 270.)

271. Similar, but with carinated shoulder, incurved neck and flared mouth. Height 7 in. Sk. '14–1,788; Block E'; sq. 74·76'; stratum II. The body of the vase, which is of very thin bronze, appears to be cast, like the base. For shape, cf. 'Pottery', no. 90 and p. 185 ***supra***.

272. Similar to preceding, but with horizontal concave flutings between shoulder and base. Height 5·12 in. Cast-copper. For shape and decoration, cf. 'Pottery', no. 91 and 'Silverware', ch. 29, nos. 5, *a–c*. Sk. '22–645/4; Block E'; sq. 67·113'; stratum II. For other articles from the same hoard, see no. 267 ***supra***. (Pl. 174, no. 272.)

273. Similar to preceding, but with convex reed moulding in place of concave flutings below shoulder. Height 5·5 in. Cast copper. Ml. 20–91/15. From same hoard as nos. 269, 270 ***supra***. (Pls. 174, no. 273; 183, *i*.)

CLASS XV. *Small flask-like vases with flat bottoms and flared mouths*. (nos. 274, 275). Cf. 'Pottery', ch. 23, Class X, *b*

They belong to the Parthian period only and may have been used for ornamental purposes, e.g. for flowers.

274. Vase of cast-copper with heavy angular moulding round neck, widely flared mouth, and six circles incised round upper half of body. Height 3·5 in. Sk. '17–164; Block F'; sq. 97·75'; stratum III. Cf. p. 183 ***supra***. (Pl. 174, no. 274.)

275. Similar, but with higher shoulders and longer neck. Band of scroll devices at base of neck. Height 3·5 in. Body partly broken. Sk. '12; Trench E31; stratum II. (Pl. 174, no. 275.)

CLASS XVI. *Bowls and cups* (nos. 276–88). Cf. 'Pottery', ch. 23, Class XV; 'Stone', ch. 25, Classes VIII, X

Only two specimens of metal bowls (nos. 276, and 276, *a*) have been found in the Bhiṛ Mound (third to second century B.C.). One (no. 283) belongs probably to the Śaka period (first century B.C.); the rest to Parthian or later times. Nos. 276 and 276, *a*, 283, 285 and 286 are of bronze, the remainder of copper.

Type *a*. ***With round bottom and lip sometimes incurved sometimes everted.***

276. Plain bowl of hammered bronze with rounded bottom. Diam. 5·25 in. Bm. '21–922; sq. 77·65'; stratum II. The shape is suggestive of a Megarian bowl.

276, *a*. Bm. '30–916. Similar, from same spot. The analysis of the bronze made by Mr Sana Ullah shows that it contains: copper, 76·76; tin, 21·55; iron, 0·95; nickel, 0·48; arsenic, 0·16. The present surface of both of these bowls has a peculiarly attractive silvery appearance, but it should be noted that this is due to the reaction on the tin of the cyanide of potassium used in cleaning the bronze. Cf. Table of Analysis II, p. 567, no. 10. (Pl. 174, no. 276, *a*.)

277, *a*, *b*. Similar to preceding but of copper and shallower. Near the edge, on the outside of no. 277, *a*, are three Gupta Brāhmī letters: Jara(va). Diam. 7·37 and 5·37 in. respectively. Chir Tope B, '21–7, *c*; 1 ft. below surface. Cf. no. 284. The names incribed may be Ephthalite. See pp. 317, 791. (Pl. 174, no. 277, *a*.)

278, *a*, *b*, *c*. Three bowls of hammered copper, similar to preceding but deeper and with rims more incurved. Diam. 6·87–7·12 in. Sk. '22–645/16; Block E'; sq. 67·113'; stratum II; first century A.D. For other objects from same hoard, see no. 267 *supra*. (Pl. 174, no. 278, *a*.)

279. Similar, but with flared lip. Diam. 4·62 in. Ml. '20–91/13; sq. 63·84'; 2 ft. 6 in. below surface; first century A.D. Cf. p. 215 *supra*. (Pl. 174, no. 279.)

280. Similar, but with almost conical sides. Diam. 7·75 in. Damaged. Chir Tope B, '21–32–7, *d*; 1 ft. below surface. One other specimen of this type of bowl has been found at the nearby Dharmarājikā Stūpa. Date uncertain. Cf. p. 317 *supra*. (Pl. 175, no. 280.)

Type *b*. *With flattened or concave base, incurved or everted lip, and with or without feet.*

281. Shallow bowl of hammered copper with concave base and *omphalos* inside, surrounded by three engraved circles. Diam. 5·15 in. Sk. '22–645/14; Block E'; sq. 67·113'; stratum II. For other objects from same hoard, see no. 267 *supra*. This and no. 285 might also be included in Class XVII. (Pl. 175, no. 281.)

282. Similar, and from same hoard as preceding, but with flat base and deeper sides. Diam. 5·62 in. Sk. '22–645/18. (Pl. 175, no. 282.)

283. Similar to preceding but of bronze, with concave base and incurved sides. Diam. 3·5 in. Only one other specimen of this type has been found. For analysis of the bronze see Table of Analysis II, p. 567, no. 15. Sk. '15–1.115; Main Street; sq. 88·72'; stratum IV. (Pl. 175, no. 283; 183, *h*.)

284. Similar, of copper, with arcading pattern round body punctured in small dots and inscription in Gupta Brāhmī: Jasha(rā)ja. Diam. 4 in. Chir Tope B2, '21–7, *a*; 1 ft. below surface. Cf. no. 277 *supra* and pp. 317, 791. (Pl. 175, no. 284.)

285. Similar, of fine cast-bronze, standing on three low solid legs of comma-pattern. Diam. 5·5 in. In bottom of bowl, *omphalos* repoussé with two concentric circles around. Brāhmī inscription of four defaced letters. Dh. '14–27; R1; surface. Cf. p. 254 *supra*; *A.S.R.* (1914), Pl. IV, 7. (Pl. 175, no. 285.)

Type *c*. *With vertical sides on low ring base.*

286. One specimen only, of cast bronze, slightly damaged. Diam. 5·5 in. Sk. '27; Trench D39; stratum II.

Type *d*. *With flat base, constricted neck and flared mouth, with or without lid.* Cf. 'Pottery', ch. 23, nos. 105–6.

287. Two bowls of hammered copper with cordon at base of neck. Diam. 6·5 in. Sk. '22–645/20; Block E'; sq. 67·113'; stratum II. For other objects from the same hoard, see no. 267 *supra* and p. 184. (Pl. 175, no. 287.)

288. Similar, with lid surmounted by finial-shaped handle. Diam. 4·75 in. Ml. '20–91/10. Cf. p. 215 *supra*. (Pls. 175, no. 288; 183, *e*.)

CLASS XVII. *Dishes and saucers* (nos. 289–97). Cf. 'Pottery', ch. 23, Class XVI, *a*, *b*; 'Silverware', ch. 29, Class V; 'Stone', ch. 25, Classes VII and VIII

The metal dishes and saucers of this class all come from the Sirkap site and date from the first century A.D. For the most part they are copied from Hellenistic or Graeco-Roman prototypes. In all specimens the metal is copper.

Type *a*. ***Shallow dish with flat bottom, concave sides and raised boss or*** **omphalos** ***in centre.*** It resembles the Greek ***phiale mesomphalos.***

289. Circular dish of cast copper with thick everted lip and knobbed *omphalos*. Diam. 13 in. Sk. '19–927; Block D'; sq. 59·114'; stratum II. Cf. p. 190 *supra*; 'Pottery', no. 109; 'Stone', nos. 39, 40; 'Silverware', no. 10. (Pl. 175, no. 289.)

Type *b*. ***Shallow dishes with concave bottoms.***

290. Dish of hammered copper, with splayed sides and inverted rim. The bottom, which is slightly concave below, is decorated at the centre with raised concentric circles. Diam. 7·37 in. Sk. '22–645/14; Block E'; sq. 67·113'; stratum II. For other objects from the same hoard, see no. 267 *supra* and p. 184. (Pl. 175, no. 290.)

291. Similar, but with vertical sides and without interior decoration. Diam. 10·5 in. Sk. '19–933/52; Block D'; sq. 59·114'; stratum II. From same hoard as nos. 211, *b*, 310, 313. For further details, see vol. I, pp. 188–9. (Pl. 175, no. 291.)

292. Here may be mentioned also a similar dish but with slightly splayed sides, made of lead. Diam. 7·5 in. Sk. '15–293; Block H; sq. 119·55'; stratum I. Cf. p. 169 *supra*. (Pls. 175, no. 292; 183, *j*.)

Type *c*. ***Flat saucer with splayed sides; sometimes with flanged or drooping rim decorated with beaded border.***

293. Plain saucer of hammered copper with splayed sides and flat base. Diam. 2 in. Sk. '16–269; Block A; sq. 23·59'; stratum II. Cf. p. 146 *supra*. (Pl. 175, no. 293.)

294. Similar, but with splayed sides and drooping rim decorated on upper side with beaded-border repoussé. Diam. 5·12 in. Ml. '20–91/3. Cf. p. 215 *supra*. (Pls. 175, no. 294; 183, *l*.)

295. Similar to preceding, but made of steatite with lining of beaten copper. Diam. 5·25 in. Sk. '15–525; Block H; sq. 125·68'; stratum II. Cf. p. 170 *supra*; *A.S.R.* (1915), Pl. VIII, *f*. (Pl. 175, no. 295.)

296. Similar to no. 294, but with leaf-pattern repoussé decorating sides. Diam. 5·25 in. Sk. '22–645/8; Block E'; sq. 67·113'; stratum II. For other objects from the same hoard, see no. 267 *supra* and p. 184. (Pls. 175, no. 296; 183, *k*.)

Type *d*. ***Flat saucer with carinated body and flared rim.***

297. Saucer of beaten copper. Diam. 5·87 in. Bottom slightly concave beneath. Ml. '20–91/14. For other objects from same hoard, see p. 215 *supra*. (Pls. 175, no. 297; 183, *l*.)

CLASS XVIII. *Frying-pans* (Greek τήγανον or τάγηνον)[1] (nos. 298–300). Cf. 'Pottery', ch. 23, Class XVI, *c*; 'Iron', ch. 27, Class V, *a*

These were stock types of domestic utensils throughout the Greek and Roman world from 300 B.C. to Pompeian times, and were doubtless imported into India by the Parthians. They occur only in the Śaka-Parthian city of Sirkap (first century A.D.). Cf. for shape, *B.M. Cat. of Silver Plate*, nos. 73, 135, 136, 183, 188–94, and *B.M. Cat. of Bronzes*, nos. 2461–5. For an imitation in alabaster, from Begrām in Afghānistān, cf. Hackin, *Recherches archéologiques à Begram*, Chantier 2 (1937), no. 165 and Pl. VIII, figs. 16–19; for a specimen in bronze from Pompeii, M. Della

[1] These are commonly identified with the Roman *trulla*, but the identification is questionable. Pliny, *N.H.* XXXVII, 18–20, v. 23 speaks of a *trulla myrrhina* (translated 'ladle' by Trowbridge) and of others made of crystal quartz. Dar. et Sag. (IV, 1077) identify them with the Roman *sartago*.

Corte, *Pompei: Les Nouvelles Fouilles*, fig. 43 and p. 62; for reproductions in glass' A. Kisa, *Das Glas im Alterthum*, II, pp. 336 and 446; I, fig. 117.

298. Handled frying-pan of bronze. Length 14·25 in. The handle, which is fastened to the bowl by four rivets, is fluted and decorated with wave-pattern, beaded bands and a ram's head at the end. The base is made in a separate piece and soldered on. Sk. '20–168; Block A'; sq. 27·84'; stratum II. Cf. Brit. Mus. no. 882, from Boscoreale,[1] and Bushe-Fox, *Richborough*, II, p. 31 and Pl. XIV, fig. 2, no. 12, for an example recently found on that site and clearly dated to about A.D. 50. Cf. p. 195 *supra*. (Pls. 175, no. 298; 183, *n*.)

299. Similar, but bead-and-reel pattern on shaft of handle, and base made in one piece with bowl. Length 15·12 in. Sk. '24–1,058; Block C; sq. 50·47'; stratum II. Cf. p. 149 *supra*; *A.S.R.* (1924), Pl. XII, 12. (Pls. 175, no. 299; 183, *o*.)

300. Similar, but of beaten copper. Round half the circumference runs a broad ornamental border of thin, fretted metal, riveted to the rim; and on the rim itself a beaded edging, repoussé. The handle is missing but the rivets for fixing it are preserved. Diam. 12 in. Sk. '20–883; Block D'; sq. 61·83'; stratum II. For the ornamental border, cf. Odobesco, *Le Trésor de Petrossa*, pt. II, p. 7, fig. 4. Cf. p. 190 *supra*. (Pls. 175, no. 300; 183, *m*.)

CLASS XIX. *Mixing-pans and basins* (nos. 301–4). Cf. 'Pottery', ch. 23, Class XVII

Like the preceding, vessels of this class are found only in the Śaka-Parthian city of the first century A.D., and appear to be mainly of Western origin.

Type *a*. *Mixing-pan with or without handle on one side.*

301. Mixing-pan of beaten copper, with slightly everted mouth. Diam. 20·12 in. Sk. '24–159; Block B; sq. 32·55'; stratum II. In another example (Sk. '19–926; diam. 12·75 in.) the pan is deeper and the metal at the rim thickened. Cf. p. 148 *supra*. (Pl. 175, no. 301.)

302. Similar, with ring-handle attached to riveted staple on one side. Diam. 10·62 in. Sk. '19–926; Block D'; sq. 59·114'; stratum II. In another example (Sk. '24–1,296; diam. 12 in.) the base is slightly concave, and in another (Sk. '28–1,307; diam. 14·75 in.) a false base is soldered on. Cf. p. 190 *supra*. (Pl. 175, no. 302.)

Type *b*. *Basin with two handles*. This is a pure Graeco-Roman type of vessel.

303. Two-handled basin of beaten copper with rounded bottom, constricted neck and wide-splayed rim. The handles are cast. At the base of each is a male bust in relief. Diam. 11·25 in. Sk. '22–645/13; Block E'; sq. 67·113'; stratum II. For other objects from same hoard, see no. 267 *supra* and p. 184. (Pl. 175, no. 303.)

304. Similar, on ring-stand, with plain handles. Diam. 12·75 in. Sk. '19–925; Block D'; sq. 59·114'; stratum II. Cf. p. 190. (Pl. 175, no. 304.)

304, *a*. Bronze handle of a basin in the form of a boar's head. Length 3·25 in. Sk. '14–68; stratum II. (Pl. 183, *p*.)

Another handle (304, *b* = Sk. '22–325; stratum II; length 1·25 in.), not illustrated, is in the form of a crocodile's head, and another (304, *c* = Sk. '29–2,628), from the Greek level in Block 2 B', is a copper ring-handle with attachment in form of a dog's or hyena's head. Cf. *A.S.R.* 1928–9, p. 91, no. 108.

[1] Dr Pryce informs me that there are other examples in the British Museum from Colchester, Faversham, Hod Hill and Sittingbourne; also earthenware facsimiles from Etruria (so-called fabric of Bolsena, third century B.C.). In Roman Britain, examples in *terra sigillata* are common.

CLASS XX. *Ladles* (nos. 305–8). Cf. 'Silverware', ch. 29, Class VIII, no. 15

Ladles are of two types, some having horizontal, some vertical handles. They are found only in the Śaka-Parthian strata in Sirkap and are manifestly copies of Greek or Graeco-Roman ladles. All are of copper.

Type *a*. *With horizontal handle.*

305. Ladle of beaten copper with horizontal handle. Length 12 in. The handle, which is made in one piece with the bowl, is square in section and ends in a pointed knob. Sk. '24–675; Block B; sq. 34·50'; stratum II. Cf. p. 148 *supra*; *A.S.R.* (1924), Pl. XII, 11. (Pl. 175, no. 305.)

Type *b*. *With vertical handle.*

306. Ladle of beaten copper, with vertical crook handle terminating in goose-head and two lug-ears on rim. Length 10·37 in. Sk. '24–736; Block C; sq. 45·44'; stratum III. This is a pure Graeco-Roman type that might have come from Pompeii. The ladles which follow, on the other hand, with their ring or spatula handles and square instead of round mouldings at the top and bottom of the handles, appear to be local modifications of the classical type. For an inscribed *simpulum* of silver with goose-head handle, cf. *B.M. Cat. of Silver Plate*, no. 128. Cf. p. 149 *supra*. (Pls. 175, no. 306; 184, *h*.)

307. Similar, but with ring-handle and square mouldings at top and bottom of the handle. Length 7·37 in. Ml. '20–91/21; sq. 63·84'; 2 ft. 6 in. below surface. On the bowl is punched a Kharoshṭhī inscription: *Iśparakasa danamukho saṁghe chatudiśe Uttararame Takshaśilae Kaśaviaṇa parigra(he)* = 'Gift of Īśvaraka to the Congregation of the Four quarters in the Uttarārāma of Takshaśilā, for the acceptance of the Kāśyapīyas.' Cf. *A.S.R.* (1923–4), p. 66 and Pl. XXVII, 9. *J.A.S.B.* XIX (1923), p. 347; List, no. 68; *C.I.I.* vol. II, p. 87 and Pl. XVII, 3. Cf. also the inscribed ladle found at Bedādi, 12 miles from Mānsehrā, in the ancient Uraśā. *C.I.I.* II, pp. 88–9 and Pl. XVII, 4. For other objects from same hoard, cf. p. 215 *supra*. (Pls. 175, no. 307; 184, *a*.)

308, *a*, *b*. Similar—two specimens, one with ring, the other with spatula handle. Length 8·87 and 8·37 in. Sk: '22–645/9; Block E'; sq. 67·113'; stratum II. Another specimen with ring-handle has a length of 10·5 in. Sk. '19–602; Block D'; sq. 62·112'; stratum II. For other objects from same hoard, see no. 267 *supra* and p. 184. (Pls. 175, nos. 308, *a*, *b*; 184, *f*.)

CLASS XXI. *Spoons* (nos. 309–19). Cf. 'Silverware', ch. 29, Class VIII, nos. 16 and 17

With two exceptions, nos. 318 and 319, all the spoons found at Taxila are of Graeco-Roman pattern and referable to the period of Parthian occupation in the first century A.D. They are made of copper and belong to several different types.

Type *a*. *With circular bowl and straight handle terminating in a variety of designs.*

309. Copper spoon with circular bowl and disk-and-knob head to handle. Length 7 in. Sk. '16–262; Block A; sq. 21·58'; stratum II. Cf. p. 146 *supra*. (Pl. 175, no. 309.)

310. Similar, with leaf-and-knob head to handle. Length 6·25 in. Sk. '19–933/14; Block D'; sq. 59·114'; stratum II. From same hoard as nos. 211, *b*, 291 (*q.v.*) and 313. Cf. *A.S.R.* (1919), Pl. VIII, 3, and 'Silverware', no. 17, *a*. (Pls. 175, no. 310; 184, *i*.)

311. Similar, with rim of bowl pointed and handle swelling in middle and terminating in leaf-in-circle. Length 6·43 in. Sk. '13–621; Block E; sq. 72·62'; stratum III. Cf. the spoons from the Boscoreale Treasure in Paris. *Monuments Piot*, v, Pl. XXVII. Cf. p. 161 (10) *supra*. (Pl. 175, no. 311.)

311, *a*. Similar, with handle terminating in a ring. Length 5·69 in. Sk. '30–96; Block I; sq. 138·52'; stratum II. Cf. p. 170 *supra*.

Type *b*. ***With oval bowl and cloven-hoof handle.***

312. Cloven-hoof spoon of beaten copper, with oval bowl. Length 6·25 in. Sk. '28–2,863; Block K; sq. 155·30'; stratum II. The handle is attached to the bowl of the spoon by a rat-tail ridge. Cf. 'Silverware', Class VIII, no. 16; Dar. et Sag. *s.v.* 'Ligula', fig. 4485 from Cyzicus and C. J. Jackson, 'The Spoon and its History', in *Archeologia*, LIII, pp. 107 ff., nos. 23, 24, etc.; Walters, *B.M. Cat. of Silver Plate*, nos. 94–105. Cf. p. 177 *supra*. (Pls. 175, no. 312; 184, *e*.)

313. Similar. Length 6·25 in. Sk. '19–933/14; Block D'; sq. 59·114'; stratum II, from same hoard as nos. 211, *b*, 291 (*q.v.*) and 310. (Pls. 175, no. 313; 184, *d*.)

Type *c*. ***With pear-shaped bowl and goose-head handle.***

314. Spoon of beaten copper, with pear-shaped bowl and crook-handle terminating in a goose-head. Length 7·12 in. Sk. '29–2,418; Block F'; sq. 94·80'; stratum II. For the pear-shaped type of spoon, compare *B.M. Cat. of Silver Plate*, fig. 36, and for the goose-headed handle, *ibid.* nos. 128 and no. 306 *supra*. Cf. p. 182 *supra*. (Pls. 176, no. 314; 184, *b*.)

315. Similar, but more elaborate design at base and head of handle. Length 7·06 in. Sk. '28–1480; Block F'; sq. 86·85'; stratum II. Cf. p. 183 *supra*. (Pls. 176, no. 315; 184, *c*.)

Type *d*. ***Double spoons, with smaller bowl at head of handle.*** This Graeco-Roman type is represented by several specimens in the British Museum. As with the *cochlear*, the smaller bowl was probably intended for eating eggs.

316. Double spoon of beaten copper. Length 8·37 in. Ml. '20–91/2; sq. 63·84'; 2 ft. 6 in. below surface. For other objects from the same hoard, cf. p. 215 *supra*. (Pl. 176, no. 316.)

317. Similar. Length 7·3 in. Sk. '26–67; Block J; sq. 144·70'; stratum II. Cf. p. 171 *supra*. (Pl. 184, *g*.)

Type *e*. ***With small bowl and long shaft.*** One specimen only of this type has been found. It came from the Mohṛā Morādu monastery and is referable to the fifth century A.D.

318. Spoon of beaten copper, with small circular bowl and long, knobbed handle. Length 8·62 in. Mm. '15–20; at monastery entrance; 8 ft. 6 in. below surface. It resembles a Roman *patella* used for pouring libations. Cf. Ramsay and Lanciani, *Manual of Roman Antiq.*, p. 391 and fig. 2 (p. 283). Cf. p. 363 (28) *supra*. (Pl. 176, no. 318.)

Type *f*. ***Straining spoon or sifter.*** Only one specimen has been found. It is from the Jauliāñ monastery and referable, like no. 318, to the fifth century.

319. Straining-spoon of beaten copper, with perforated bowl. Length 12·62 in. Originally fitted with wooden handle. Jn. '16–245, *b*; cell no. 13; 13 ft. below surface. Cf. p. 385 *supra*; *Jauliāñ Memoir*, Pl. XXVII, *f*. (Pl. 176, no. 319.)

CLASS XXII. *Incense-burners* (nos. 320–2). Cf. 'Pottery', ch. 23, Class XX, *b*; 'Iron', ch. 27, Class XI

Incense-burners consist of a small shallow bowl resting on three legs, with a long horizontal handle on one side. In the earliest example (no. 320) the handle is plain with a ring head. In the two later examples the handle takes the form of a winged or wingless lion rampant. All are of cast metal.

320. Three-legged incense-burner of copper(?), with long ring handle riveted to rim. Length 10·62 in.; diameter of bowl, 4 in. Sk. '30–216/3; Block C'; sq. 47–48·95'; stratum V.

Greek period. From same find as nos. 259 (*q.v.*), 323, 327, 329, *a*, 345, *a*, 350, *a*. (Pl. 176, no. 320.)

321. Similar, but with handle in form of horned and winged lion. The bowl rests on three legs and is decorated with two concentric beaded circles in relief. The front legs of the lion are riveted to the rim of the bowl; the back ones rest on a rectangular pedestal. Length 9·25 in. Sk. '20–439; Block B'; sq. 38·88'; stratum II. Cf. p. 194 *supra*. (Pls. 176, no. 321; 184, *k*.)

322. Handle only of bronze, in form of lion rampant. Length 6·62 in. The animal is a vigorous piece of modelling of the Parthian period. The forefeet are pierced with holes for riveting to the missing bowl. For the analysis of the bronze, see Analysis Table, p. 568, no. 24. Sk. '20–318; Block B; sq. 29·41'; stratum I. Cf. p. 148 (4). (Pls. 176, no. 322; 184, *l*.)

CLASS XXIII. *Standard incense-bowls* (nos. 323–7, *a*). Cf. 'Pottery', ch. 23, Class XX, *a*

The specific purpose of these small vessels is not altogether certain, though there can be little doubt that they were used for incense. In shape, some of them resemble the standard offerings-bowls found on Buddhist sites, but they are too small to have been used for offerings. They are found only in the Greek, Śaka and Parthian strata, and appear to be copied from foreign models. All are of copper. Cf. Dar. et Sag. V, p. 542, *s.v.* 'Turibulum' = Gr. θυμιατήριον.

323. Bowl of copper (?) on an elaborate stand. 5·75 in. high. The stand, which is round above and square at the base, is supported at each corner by a bird with outspread wings, and provided with a broad drooping flange at the point of juncture with the bowl. The upper surface of the base is adorned with a spiral-scroll design in relief, and the upper surface of the flange with lotus leaves. The bowl has vertical sides and projecting rim. Sk. '30–216/2; Block C'; sq. 47–48·95'; stratum V. The bowl was found in the Greek stratum along with a number of other objects, including the spouted vessel (no. 259), copper incense-burner (no. 320). For other objects found in same group, cf. no. 259 and p. 125 *supra*. (Pls. 176, no. 323; 184, *m*.)

324. Hemispherical bowl on plain circular stand, with conical base. Height 2·87 in. At the base of the bowl is a small cup-like projection to fit it more securely to the stand. Sk. '19–1,562; Block D'; sq. 57·116'; stratum IV. For the shape of this and of no. 326, compare the standard stone bowl of Maurya date at Sāñchī. Marshall and Foucher, *The Monuments of Sāñchī*, Pl. 104, *b*. Cf. p. 134 *supra*. (Pl. 176, no. 324.)

325. In this example, which dates from the Early Śaka period, the bowl is cylindrical and supported on a narrow neck, like a modern wine-glass, above the stand; round the shaft of the stand are three horizontal bands, and on its base a fretted arch and circle pattern. Height 8·75 in. Sk. '29–1,614/1; Block C'; sq. 44·96'; stratum IV. (Pl. 176, no. 325.)

326. Generally similar to no. 324, but with square stepped base, supported at each corner by a bird, and the bowl itself is deeper and provided with a vertical rim. Height 7·25 in. Sk. '27–887; Block E'; sq. 73·90'; stratum III. Cf. p. 185 *supra*. (Pl. 176, no. 326.)

327. Hemispherical bowl of copper with narrow horizontal rim; shaft of stand round and plain; the base, which is supported on four feet, is pyramidal in shape with triangles fretted out of its four sides. Height 5·75 in. Sk. '24–151; Block C; sq. 47·49'; stratum II; first century A.D. Cf. p. 149 *supra*; *A.S.R.* (1924), Pl. XII, 10. (Pl. 176, no. 327.) A fragment of a similar stand decorated with fretted circlets was found in the Greek stratum in Sirkap along with nos. 259 (*q.v.*), 320, 323, 329, *a*, 345, *a*, 350, *a*.

327, *a*. Bowl-stand of copper splayed out towards the bottom. Round the shaft are three horizontal bands and at the base an open fretted design, as in no. 325. Sk. '22–645; stratum III. (Pl. 184, *j*.)

CLASS XXIV. *Inkpots, pens and stili* (nos. 328–43)

It is noteworthy that the Greek words for ink (μέλαν) and pen (κάλαμος) found their way into Sanskrit, thus corroborating the evidence from Taxila that these articles were introduced by the Greeks. The Sanskrit for ink is *melā*; for pen *kalamo*.

With two exceptions (nos. 329, *a*, 330), one of which comes from the Greek and the other from the Early Śaka stratum, all the inkpots found at Taxila are from the Śaka-Parthian city. Among them, two types are represented: (*a*) a simple *haṇḍī*-like vessel with flat base and with or without a lid; and (*b*) a wider mouthed, often carinated bowl, with a wire handle and sunk lid, in the centre of which is an orifice for the pen. For inkpots of earthenware, cf. ch. 23, nos. 142–50.

Type *a*. *Plain* haṇḍī-*shaped vessel with flat base.*

328. Inkpot of cast-copper with half-closed mouth and flat base, decorated with incised lines round middle. Height 1·75 in. Sk. '26–1,026; Block I; sq. 133·53'; stratum II. (Pl. 176, no. 328.)

329. Similar, with plain body and hole in neck for attachment of lid. Height 2·37 in. Ml. '20–91/9; sq. 63·84'; 2 ft. 6 in. below surface. For other objects from same hoard, cf. p. 215 *supra*. (Pl. 176, no. 329.)

Type *b*. *With wire handle and sunk lid pierced with hole in centre for pen.*

329, *a*. *Haṇḍī*-shaped inkpot of copper with vertical neck and projecting lugs on rim for handle. Damaged. Diam. 3·5 in. Sk. '216–6; Block C'; sq. 47–48·95'; stratum V. From same find as nos. 259 (*q.v.*), 320, 323, 327, 345, *a*, 350, *a*.

330. Bowl-shaped inkpot of bronze with plain wire handle attached to rim. Sunk into the neck of the vessel and fixed with rivets is a flat lid, with hole in centre for the pen. Diam. 3 in. Sk. '13–1,121; Block E; sq. 75·65'; stratum IV. Found with no. 252, *a* and near no. 427. Cf. *A.S.R.* (1914), Pl. XXIII, 5. (Pl. 176, no. 330.)

331. Vase-shaped inkpot of copper, with projecting lugs on rim for iron handle, traces of which remain. Height 2·87 in. Inside, remains of black ink. Sk. '28–1,071; Block D'; sq. 55·95'; stratum I. Cf. p. 190 *supra*. (Pl. 176, no. 331.)

332. Similar, but shape of standard bowl, with carinated body and made of bronze. Height 3·37 in. Sk. '13; Block E; stratum II. (Pl. 176, no. 332.)

333. Similar, but shape of carinated bowl, with tube and stopper in middle of lid and high-pinched handle. Diam. 2·3 in. Sk. '26–2,215; Block G; sq. 110·52'; stratum I. For other objects from same group, see no. 207 *supra* and p. 168. (Pl. 176, no. 333.)

334. Similar to preceding, but of copper and with serpentine handle. Diam. 4·5 in. The stopper is attached to the handle by means of a short chain. Sk. '15–864; Block B; sq. 32·61'; stratum II. (Pl. 176, no. 334.)

335. Similar to preceding, with serpentine handle, tube, stopper and chain. Diam. 5·37 in. Sk. '27–177; Block E'; sq. 77·91'; stratum II. From same find as no. 365 *infra*. Cf. p. 184 *supra*. (Pls. 176, no. 335; 184, *n*.)

336. Similar, without stopper or chain. Height 2·12 in. Sk. '14–1,796; Block E'; sq. 74·76'; stratum II. Cf. p. 185 *supra*.

337. Similar to preceding. Diam. 3 in. Sk. '20–765, *a*; Block D'; sq. 57·92'; stratum I. Cf. p. 190 *supra*.

338. Similar, but of bronze. Height 3·75 in. Sk. '24–558; Block C; sq. 42·52'; stratum II. Cf. p. 149 (2) *supra*.

339. Similar, of copper. Diam. 2·5 in. Sk. '20–99; Block A'; sq. 24·82'; stratum I.

Pens. Only two specimens of metal pens have been found at Taxila, both in the Śaka-Parthian city (first century A.D.). They are made of copper and shaped like reed pens with the point divided by a cut, as in the modern nib. This is a reproduction in metal of the reed pen (κάλαμος) which the Greeks introduced into India.

340. Copper pen, shaped like a reed pen, with point divided by a cut; shaft octagonal. Length 5·81 in. Sk. '27–1,335; Block D'; sq. 66·119'; stratum II. Cf. p. 190 *supra*. (Pl. 173, *gg*).

341. Similar, with round shaft. Length 4·37 in. Sk. '14–1,425; Block E; sq. 75·69'; stratum III. Cf. p. 162 (14) *supra*. (Pl. 173, *hh*.)

Stili. Both of the stili described below come from the Bhiṛ Mound and are referable to the third century B.C. They are of the familiar classical type, with one end pointed for writing on the waxed tablet, the other flat for smoothing the wax and erasing the writing. For other stili, see 'Bone and Ivory Objects', ch. 32, nos. 69–81.

342. Copper stilus; one end sharp-pointed, the other flat and chisel-shaped. The flat end is bent to an angle of about 40°. Length 4·5 in. Bm. '21–854; sq. 45·130'; stratum II. Cf. p. 167 *supra*. (Pl. 173, *ii*.)

343. Similar, but shorter, with flat end slightly curved. Length 2·75 in. Bm. '19–1,042; sq. 61·4'; stratum II. (Pl. 173, *cc*.)

Class XXV. *Bells* (nos. 344–52)

Only two bells have been recovered from the Bhiṛ Mound (third century B.C.) but there are a considerable number from the earlier and later strata in Sirkap, mainly of the first century A.D., and from the Buḍdhist monasteries of the fifth century A.D. Those from the Bhiṛ Mound are small in size and of elongated form (nos. 344–5). Of the others, the larger specimens resemble a hemispherical bowl inverted, with a ring-handle at the top; the smaller ones assume a variety of simple forms. The metal of the bowl is usually bronze (cf. Tables of Analysis, pp. 567–8, nos. 11, 20) but several specimens appear to be of more or less pure copper, though none of the latter have actually been analysed. The clappers are frequently of iron. Cf. 'Iron Objects', ch. 27, nos. 41–7, and Flinders Petrie, *Objects of Daily Use*, p. 57, nos. 292–305, and Pl. L.

344. Bell of bronze, with ring-handle at top; clapper missing. Height 1·75 in. Bm. '20–1,303; sq. 24·46'; stratum II. (Pl. 176, no. 344.)

345. Similar, of less elongated form; clapper suspended from ring. Height 1·75 in. Bm. '19–406; sq. 12·30'; stratum II. (Pl. 176, no. 345.)

345, *a*. Similar, with everted rim and horizontal cordon around body. Height 1·75 in. Sk. '30–216; Block C'; sq. 47–48·95'; stratum V; second century B.C. From same find as nos. 259 (*q.v.*), 320, 323, 327, 329, *a* and 350, *a*. See Table of Analysis, p. 567, no. 11.

346. Similar. Two holes inside for suspension of clapper. Height 2·5 in. Sk. '14–479; Block C'; sq. 45·75'; stratum III. Cf. p. 193 *supra*. (Pl. 176, no. 346.)

347. Similar, but of conical shape. Height 1·62 in. Sk. '12–554; Block G; sq. 114·66'; stratum III. Cf. p. 169 *supra*. (Pl. 176, no. 347.)

348. Similar, with constricted neck and flared mouth. Height 1·25 in. Sk. '26–2,738; Block G; sq. 108·55'; stratum II. Cf. p. 169 *supra*. (Pl. 176, no. 348.)

349. Similar, but cup-shaped and of copper. Height 1·25 in. Sk. '26–2,215; Block G;

sq. 110·52′; stratum II; first century A.D. Found in same group as nos. 207, 249, 333, 359 and 364. For further details, see p. 168 *supra*. (Pl. 176, no. 349.)

350, *a*. Six bowl-shaped bells of copper with separate ring-handle at top and iron clapper suspended from ring inside. The bowl is of beaten metal; the handle cast. One of them is damaged. Height 2·62–3 in. Sk. '216–4; Block C′; sq. 47–48·95′; stratum V; second century B.C. Other objects in the same group were nos. 259 (*q.v.*), 320, 323, 327, 329, *a*, 345, *a*.

350, *b*. Similar. Diam. 6 in. Sk. '15–631; Block A; sq. 19·66′; stratum I. Cf. p. 144 (2) *supra*; *A.S.R.* (1915), Pl. IX, 9; first century A.D. (Pl. 176, no. 350.)

351. Similar, of bronze, with vertical sides to bowl. Clapper missing. Height 3·37 in. Jn. '16–231, *a*; cell 25; fifth century A.D. Cf. p. 385 *supra*. (Pl. 176, no. 351.)

352. Two small bells of beaten bronze, with mouth almost closed and ball in place of clapper. Height 1·06 in. Jn. '16–1, *b*; front of chapel C2; fifth century A.D. This form of bell gives a lower note for its size than the open ones. Cf. Flinders Petrie, *Objects of Daily Use*, p. 58, nos. 301–2. Cf. p. 384 *supra*. (Pl. 176, no. 352.)

CLASS XXVI. *Keys* (nos. 353–6)

Keys are found only in the Sirkap and later sites, from Śaka times onwards. No specimens have been found in the Bhiṛ Mound. They are made of copper, bronze and iron. Those of iron are described in 'Iron Objects', ch. 27, Class XV. The copper and bronze ones are of a type common in the Graeco-Roman world. They consist of a short ring-headed shaft, a piece at the base bent at right angles to it, and three or four teeth (Greek = γόμφιοι) projecting from the latter, or sometimes from the shaft as well. The teeth fitted into corresponding sockets in the latch, which could thus be raised and the door opened. These keys were not designed like modern ones, to turn in the lock and push the bolt home, though such keys were in use among the Romans. Cf. Flinders Petrie, *Tools and Weapons*, pp. 59, 60, and Pl. LXXII, 205–10, and Pl. LXXVI; and *B.M. Cat. of Bronzes*, p. lxv and nos. 2606–68. For other types of keys and key-plates, see 'Iron Objects', Class XV.

353. Copper key with ring-handle, square moulded top to shaft, and wards with three teeth at right angles. Length, 1·25 in. Sk. '29–1,052; Sixth Street (west); sq. 66·106′; stratum IV. Cf. p. 134 *supra*. (Pl. 176, no. 353.)

354. Similar, with four teeth. Length 2·12 in. Sk. '29–2,157; Block A; sq. 26·43′; stratum III. Cf. p. 146 *supra*. (Pl. 176, no. 354.)

355. Similar, of bronze, with five teeth (one on shaft) and more elaborate handle. Length 2·43 in. Sk. '24–272; Block B; sq. 34·48′; stratum II. Cf. p. 148 *supra*. (Pls. 176, no. 355; 184, *o*, 7.)

356. Similar, with three teeth on wards. Length 1·37 in. Sk. '27·17; Block K′; sq. 169·93′; stratum I. Cf. p. 180 *supra*. (Pl. 176, no. 356.)

GROUP D. SURGICAL AND OTHER INSTRUMENTS AND MISCELLANEOUS

CLASS XXVII. *Surgical and other instruments* (nos. 357–72)

Decapitators. The purpose of the curious-looking instruments nos. 357–60 is by no means certain, but the accepted view, which the writer does not share, is that

they were surgical decapitators for use in obstetric operations. Cf. Milne, *Surgical instruments in Greek and Roman Times*, p. 154, Pl. L, no. 2. They are of two kinds, both made of copper. Type *a*, which is the earlier (third to second century B.C.), is of copper sheeting strengthened with a copper-wire rib on either side. Type *b* (first century A.D.), is of solid metal. Both types have a sharp cutting edge on the inside.

Type *a*. *From the Bhir Mound only.*

357. Decapitator(?), made of copper-sheeting, strengthened with wire ribbing on either side. Cutting edge on inner side. Handle missing. Length 2·12 in. Bm. '21–30; sq. 32·43'; stratum I. Cf. p. 111 *supra*. (Pl. 177, no. 357.)

358. Similar. Length 2·12 in. Bm. '19–628; sq. 12·26'; stratum I.

Type *b*. *From the Saka-Parthian city in Sirkap.*

359. Decapitator(?) of solid copper. Length 7·12 in. The hook is sharply bevelled to a cutting edge on the inside; the handle has a round shaft ending in a disk head. Sk. '26–2,215; Block G; sq. 110·52'; stratum II. From same group as nos. 207 (*q.v.*), 249, 333, 349, 364. (Pls. 177, no. 359; 185, *g*.)

360, *a*, *b*, *c*. Similar to preceding, but with thicker shaft and slightly shorter. Length 6·5 in. Sk. '20–540; Block C'; sq. 40·85'; stratum II. Two other specimens of the same type are Ml. 91/4; sq. 63·84'; length 6·62 in.; and Sk. 1,122; Block D'; sq. 64·104'; stratum II; length 6·44 in. Cf. pp. 193, 215, 190 *supra*. (Pls. 177, no. 360; 185, *f*, *e*, *h*.)

Spatulas. Spatulas were employed for a variety of surgical purposes, particularly for the mixing and spreading of ointments, etc. The typical Graeco-Roman spatula had a leaf-shaped or oval blade at one end and a bulb at the other. In some of the specimens described below, the bulb is replaced by the Indian *nandipada* executed in flat beaten metal. A number of these instruments have been found in Sirkap, at the Dharmarājikā Stūpa and on other later sites. They may have been used for purposes other than surgical.

361. Copper spatula with round shaft and *nandipada* handle. Length 8·75 in. The circle of the *nandipada* is not hollowed out. Sk. '16–146; Block A; sq. 20·59'; stratum II. Cf. p. 146 *supra*. (Pl. 177, no. 361.)

362. Similar. Length 7·31 in. Sk. '22–645/11; Block E'; sq. 67·113'; stratum II. For other objects in same hoard, see no. 267 *supra*.

363. Similar. Length 8·37 in. Sk. '12; Trench E35; stratum II. (Pl. 185, *b*.)

364. Similar, with heart-shaped pattern fretted out of blade. Length 8·62 in. Sk. '26–2,215; Block G; sq. 110·52'; stratum II. From same group as nos. 207 (*q.v.*), 249, 333, 349, 359. (Pls. 177, no. 364; 185, *c*.)

365. Similar, but splayed chisel-shaped blade; handle ovoid with beaded head. Length 8·25 in. Sk. '27–177; Block E'; sq. 77·91'; stratum II. From same find as no. 335 (*q.v.*). (Pls. 177, no. 365; 185, *a*.)

Forceps.

366. Copper forceps with pointed ends. Length 3·18 in. Sk. '14–1,366; Block E; sq. 76·67'; stratum II. Cf. p. 162, n. 1 *supra*; *A.S.R.* (1914), Pl. XXIV, 29. (Pl. 173, *mm*.)

Scale-pans. The small copper scale-pans listed below seem likely to have been used for the weighing of medicines. They belong to the Parthian and later periods.

367. Hemispherical scale-pan of copper with two holes for suspension. Diam. 0·87 in. Sk. '12; Trench E 9; stratum II. (Pl. 177, no. 367.)

368. Similar, but flatter. Diam. 2 in. Dh. '16–332; T 2; 2 ft. below surface. Date uncertain. Cf. p. 247 *supra*. (Pl. 177, no. 368.)

369. Similar, with rim everted, and three holes for suspension. Diam. 3·18 in. Sk. '27–132; Block E'; sq. 77·92'; stratum II. Cf. p. 185 *supra*. (Pl. 177, no. 369.)

Needles. Only three specimens of copper needles have been recovered. They appertain to the period from the third to the first century B.C. In the earliest, from the Bhiṛ Mound, the eye is unduly large and the head slightly expanded; in the later ones, the eye is smaller and there is no visible difference between the head and the shaft.

370. Needle of copper, 3·31 in. long, with expanded head and coarse eye. Bm. '21–612; sq. 123·91'; stratum II. (Pl. 173, *ll*.)

371. Similar, with smaller eye and without any marked difference between head and shaft. Length 3·87 in. Sk. '28–319; Block A'; sq. 16·88'; stratum IV. (Pl. 173, *jj*.)

372. Similar to preceding, with very small eye. Length 2·37 in. Sk. '29–2,184; Block A'; sq. 18·93'; stratum IV. (Pls. 173, *kk*; 184, *o*, 2.)

CLASS XXVIII. *Tools, hinges, clamps, handles and chains* (nos. 373–85)

Hammers. For iron hammers, see 'Iron Objects', ch. 27, Class XXXI, nos. 136–9. The copper or bronze hammers described below are small in size and intended probably for light metal-work. Some are provided with a single square flat head; others with two heads, either rectangular or round. All were found together in the Śaka-Parthian city in Sirkap.

373. Single-headed hammer of copper (?), with square flat head and socket-hole for handle. Length 1·62 in. Sk. '26–4,429/2; Block K; sq. 189·70'; stratum II. Cf. p. 178 *supra*. (Pl. 177, no. 373.)

374, *a–f*. Six double-headed hammers of copper varying in length from 2·5 to 3·5 in., with socket-holes for handles. Some of the heads are rounded, others rectangular, and flat. One of the square-headed type bears the Kharoshṭhī letter *he* engraved upon it. From same spot as preceding. Stratum II. (Pl. 177, no. 374.)

Plummet.

375. Bronze plummet with ringed projection at top for cord. Height 1·62 in. Bm. '21–1,568; sq. 52·125'; stratum II. For a somewhat similar bronze plumb-bob of the Graeco-Roman period from Egypt, cf. Flinders Petrie, *Objects of Daily Use*, p. 42 and Pl. XLVII, 93, and for iron plummets of the first century A.D., see 'Iron Objects', nos. 211–13. (Pl. 177, no. 375.)

Blow-pipe.

376. Blow-pipe of beaten copper of a type still used, particularly for soldering, by goldsmiths in India. Length 8·75 in. Sk. '24–737; Block C; sq. 45·44'; stratum III. A section missing from the narrow end. Cf. p. 149 (4) *supra*. (Pl. 177, no. 376.)

Hinges. Cf. 'Iron Objects', nos. 177–9. The copper and bronze hinges date from the first century A.D., the iron ones from the fifth century A.D.

377. Two pairs of ornamental copper hinges; one damaged. Length 2·37 and 1·5 in. Sk. '27–517; Block E'; sq. 74·90'; stratum III. Cf. p. 185 *supra*. (Pl. 177, no. 377.)

378. Ornamental bronze hinge, one half leaf-shaped, the other rectangular. Length 1·62 in. Sk. '16–148; Block A; sq. 20·59'; stratum II. Cf. p. 146 *supra*. (Pl. 177, no. 378.)

379. Similar and from same spot as preceding. Length 1·5 in. Sk. '16–147. (Pl. 177, no. 379.)

Clamps.

380. Four double-clamps of copper, with two cross-nails in each. Length 1·5 in. Sk. '26–2,703; Block F; sq. 91·48'; stratum IV. Cf. 'Iron Objects', no. 171; pp. 134, 166, n. 1 *supra*. (Pl. 177, no. 380.)

Loop-handles.

381. Loop-handle of copper made of broad strip of metal, with two nail-heads adhering. Length 2·37 in. Sk. '15–796; Block K'; sq. 162·105'; stratum II. Cf. p. 180 *supra*. (Pl. 177, no. 381.)

382. Similar with holes for nails. Length 2·37 in. Sk. '15–401; Block E; sq. 77·51'; stratum I; first century A.D. Cf. p. 162, n. 1 *supra*. (Pl. 177, no. 382.)

Chains.

383. Copper chain with seven links and two terminal rings of the same metal. The links are of the figure-of-eight type. Length 15 in. Sk. '14; Trench A50, *c*; stratum II.

384. Copper chain with figure-of-eight links. Length 5·56 in. Sk. '20–347; Block B; sq. 28·39'; stratum II. (Pl. 177, no. 384.)

385. Similar. Length 3·25 in. Fifth century A.D. Jn. '18–19; cell 2; inside niche. Cf. p. 385 *supra*. (Pl. 177, no. 385.)

CLASS XXIX. *Miscellaneous* (nos. 386–401)

Lamp

386. Copper lamp in form of lotus cup carried on a serpentine bracket. Fifth century A.D. Length 6·25 in. Jn. '18–20; cell 3; 6 ft. below surface. Cf. p. 385 *supra*. (Pl. 177, no. 386.)

Flute

387. Part of copper and ivory flute of Hellenistic pattern (αὐλός), made of two tapering tubes fitted together. Length 3·12 in. Encircling the larger tube is an acanthus leaf, from which emerges the forepart of a winged Pegasus admirably executed in ivory. The horse is fastened to the tube by a small copper chain attached to its mouth, and passing round its body above the acanthus leaf is a band of copper. The latter is roughly made and evidently a later addition. To make the joint between the two tubes more airtight, a bit of birch bark paper was wrapped round the end of the smaller tube. Parthian period. Sk. '27–888; Block E'; sq. 73·90'; stratum III. Cf. p. 185 *supra*; *A.S.R.* (1927), p. 63 and Pl. xx, 6, 8. (Pls. 177, no. 387; 185, *l*.)

Shield-bosses

388. Copper shield-boss, riveted on to iron disk. On the face of the latter are three projecting staples for some attachment. Diam. 3 in. Sk. '29–793; Block B'; sq. 35·89'; stratum IV. Cf. 'Iron', ch. 27, nos. 93–5 (Pl .165) and 'Silverware', ch. 29, no. 22 (Pl. 187). (Pl. 177, no. 388.)

389. Copper shield-boss, convex in front, concave behind. Projecting *omphalos* in centre, with strengthening cross-bar at back. Diam. 6·75 in. Ml. '20–91/6; sq. 63·84'; 2 ft. 6 in. below surface. Cf. p. 215 *supra*. (Pl. 177, no. 389.)

Toy carts

390. Copper wheel of a toy cart (*mṛicchakaṭika*) with eight spokes. Diam. 2·25 in. Bm. '20–1,374; sq. 31·39'; stratum I. Cf. 'Terra-cottas', ch. 24, Class XV, nos. 58–60. The toy cart was a favourite toy in ancient India and gave its name to one of the best-known plays in Indian literature. For specimens of prehistoric date from Mohenjo-daro, Harappā and other places, cf. *M.I.C.* pp. 39, 554–5. Cf. p. 111 *supra*.

391. Two-wheeled toy chariot. Size 3·12 × 2·75 in. Sk. '20–171; Block A'; sq. 27·83'; stratum I. This vehicle appears to be a sort of light racing chariot, and is quite different

from the typical Indian chariot of this period, as depicted, for example, in the reliefs of Sāñchī (Marshall and Foucher, *Monuments of Sāñchī*, Pl. XXIII). In the ordinary Indian chariot, the car was protected by a high front as well as sides, the back only being open. In the Roman racing chariot, there was also a protecting front more or less high, but the sides sloped away to the rear. In this example from Sirkap, both front and back are open, and the sides straight along the top instead of curved or sloping. The pole, too, is strengthened by diagonal stays, which are not found in the normal Indian or classical chariots. Whether another pole, with a yoke, was intended to be fixed into the small hole at the apex of the stays, or whether the chariot was drawn by traces instead of a yoke, is not clear. Possibly this and the terra-cotta car no. 60 were foreign types of vehicles introduced by the Parthians. For toy carts of Greek and Roman children, cf. Dar. et Sag. II, p. 1356. Cf. p. 195 *supra*. (Pl. 185, *i*.)

392. Copper wheel of a toy cart. Diam. 1 in. Sk. 1,227; Block D′; sq. 53·113′; stratum I. Cf. p. 190 *supra*.

Staff terminals

393. Bronze terminal of a monk's staff in the form of a *dharmacakra*. Height 5·5 in. The wheel has twelve spokes, each of which (except the bottom one) terminated on the outside of the felly in a small half-circle or umbrella instead of the usual *triratna* emblem found in earlier examples (e.g. Marshall and Foucher, *op. cit.* Pl. XVIII, *a*, 1). At the bottom of the *dharmacakra* is a hollow socket into which the staff fitted. Sk. '27–149; Block E′; sq. 76·84′; stratum I; first century A.D. (Pl. 177, no. 393.)

394. Bronze terminal of staff(?) in form of triangle, with a *cakra* at each corner. Remains of iron stays riveted to two lower triangles. Height 4·37 in. Jn. '16–224; cell 25; fifth century A.D. Cf. p. 385 *supra*. (Pl. 177, no. 394.)

Swastika design

395. Rectangular plate of copper, with swastika design in relief. Size 2·62 × 2·31 in. For swastikas, cf. 'Gold and Silver Jewellery', ch. 30, nos. 85, *a–d*. Sk. '29–61; Block 1′; sq. 12·99′; stratum III. Cf. p. 196 *supra*. (Pl. 185, *k*.)

Vine leaves

396. Rectangular plate of copper, with four vine leaves in relief round central circlet. Beaded-border between lines. 4·12 × 3·87 in. Sk. '20–499; Block A′; sq. 22·81′; stratum II. Cf. p. 195 *supra*. (Pl. 185, *m*.)

Amorini

397. Rectangular copper plate with three amorini in relief on waved foreground. The kneeling figure in the middle holds uncertain object (? flute) in hands. Heads of standing figures missing. Width 1·5 in. Sk. '22–519/2; Block C′; sq. 47·89′; stratum II. Cf. p. 193 *supra*. (Pl. 186, *a*.)

Winged Eros

398. Fragment of bronze corner-piece adorned with winged Eros in relief, supporting architrave. Height 1·12 in. Sk. '24–480; Block B; sq. 38·45′; stratum II. Cf. p. 148 (5) *supra*. (Pl. 185, *n*.)

Vine leaf

399. Broken sheet of copper embossed with vine leaf. Size 4·12 × 3·87 in. Sk. '20–499; Block A′; sq. 22·81′; 3 ft. 3 in. below surface. For vine-leaf motif at Taxila, cf. nos. 60, 62, 396 *supra*, and for an example in metal from Begrām in Afghānistān, see J. Hackin, *Rec. Arch. Begram*, Chantier II (1937), Pl. XX, fig. 46. Cf. p. 195 *supra*. (Pl. 185, *j*.)

Hearts and flowing acanthus pattern

400. Copper-sheet of irregular shape embossed with four hearts and flowing design of acanthus leaves and stylised lotus flowers. Size 4·12 × 3·62 in. Sk. '28–132; Block A′; sq. 27·92′; stratum II. Cf. p. 195, and for acanthus leaf decoration, cf. no. 90 *supra*. (Pl. 178, *a*.)

Leaf-shaped pendant

401. Leaf-shaped pendant of copper, punctured with rows of dots. Possibly an amulet for cattle. Height 3·9 in. Dh. '16–287; T2; 2 ft. 6 in. below surface. Early medieval(?). Cf. p. 247 *supra*.

CLASS XXX. *Door ornaments* (nos. 402–12)

With one exception (no. 408) the ornaments described below, as well as others of the same kind, come from the Buddhist monasteries at Taxila, where they

appear to have decorated the doors or lintels in front of the monks' cells or to have been fixed on shafts above them. They take the form of *triratnas*, *dharmacakras* and *padmas*, and are assignable to the fifth century A.D. For door-bosses of iron, cf. ch. 27, nos. 157–62.

402. *Triratna* of beaten copper with crescent at base pierced with two holes for nails. The prongs of the trident unite in three *dharmacakras*(?). Height 5·25 in. Dh. '16–278; mon. court A; 5 ft. below surface. Cf. 278 *supra*. (Pl. 178, *b*.)

403. Similar, but central prong of *triratna* is prolonged and alone surmounted by wheel. Height 6·87 in. Mm. '15–244; outside monastery on north. Cf. p. 363 (29). (Pl. 178, *c*.)

404. *Triratna* of copper surmounted by cross with three *dharmacakras*. On the back are three sockets for attachment to shaft. Height 17·5 in. Chir Tope B (Akhaurī), chapel 1. Cf. p. 317 *supra*.

405. Similar, with two sockets on the back for shaft. Height 8·5 in. Kn. '31–339; court F; cell 7. Cf. p. 336 *supra*. (Pl. 178, *e*.)

406. *Dharmacakra* of beaten copper with hole at centre. Diam. 4·37 in. Jn. '16–301, *c*; cell 3. Cf. *Jn. Mem.* pp. 53–6. Cf. p. 385 *supra*. (Pl. 178, *i*.)

407. Similar. Diam. 2·37 in. Pippala '21–147; debris. Cf. p. 367 *supra*. (Pl. 178, *k*.)

408. Lotus of copper repoussé with raised centre and curved leaves. Diam. 5 in. Sk. '16–278; Block E'; sq. 79·78'; stratum II. Cf. p. 185 *supra*. (Pl. 178, *j*.)

409. Similar, but riveted on to a thin flat copper rod and of rougher workmanship. Diam. 3·62 in. Gr. '27–136; D-room 5; 2 ft. below surface. Cf. p. 347 *supra*.

410. Cup-like rosette of copper with five leaves. Trace of iron nail at centre. Diam. 3 in. Jn. '16–231, *c*; cell 25. Cf. p. 385 *supra*; *Jn. Mem.* pp. 53–7. (Pl. 178, *d*.)

411. Similar, from same monastery, cell 29. Diam. 3·25 in.

412. Copper lotus, with eight petals in high relief and tips of others in lower relief behind. Diam. 11·75 in. Kn. '31–136; A31; 4 ft. below surface.

CLASS XXXI. *Finials of votive stūpas* (nos. 413–16)

413. Copper finial with three flat, disk-like umbrellas. Height 2·19 in. Sk. '21–91; stratum II.

414. Staff (*yashṭi*) and umbrellas (*chatravali*) of beaten copper belonging to a votive stūpa. Between the capital of the staff and the umbrellas was a hollow sphere made in two pieces, intended probably for the reception of a relic. Height 17 in. Jn. '16–224, *a*; cell 25; 1 ft. 4 in. below surface. Fifth century A.D. Cf. p. 385 *supra*. (Pl. 178, *h*.)

415. Copper finial, plated with gold. Height 4·62 in. At the top is a crescent surmounted by three circles (*dharmacakra*), one of which is missing. At the bottom is a hollow socket intended to take a tenon. Dh. '17–141; mon. court A; 5 ft. 1 in. below surface. Date uncertain. Cf. p. 278 *supra*. (Pl. 178, *f*.)

416. Copper finial, without umbrellas or symbols. Height 3·5 in. Jn. '16–300, *b*; cell 3; 15 ft. below surface. Fifth century A.D. Cf. p. 385 *supra*. (Pl. 178, *g*.)

GROUP E. FIGURINES

CLASS XXXII. *Figurines, etc.* (nos. 417–30)

Metal figurines, whether in the round or in relief, are surprisingly rare at Taxila. Many of the larger statues which stood in the monastery chapels may have been made of copper or bronze, as well as of terra-cotta and clay, but none such have

survived; and of smaller figurines, eleven only have been found in Sirkap, one at the Dharmarājikā Stūpa and one at Jauliāñ. From the Bhir Mound there is not a single specimen.

As to technique, all the figurines with the exception of no. 420, which is of thin repoussé metal, have been solid-cast in open or piece-moulds. The earliest among them is the camel relief (no. 427) which dates from the first century B.C.; the others are of the first century A.D. or later.

A. Graeco-Roman Types.

417. Bronze statuette of the Egyptian child-god Harpocrates (Horus), child of Isis and Osiris. Height 5 in. Cast solid, probably in a piece-mould. Sk. '13–194/21; Block E; sq. 77·66'; stratum II. Cf. p. 159. The child-god stands with heels almost together, wearing a long sleeveless tunic, which reaches to his ankles and leaves the left shoulder bare. His right forefinger is raised towards his lips—a gesture which the Greeks and Romans interpreted as enjoining silence upon his votaries, who were forbidden to speak of the mysteries revealed to them, but which in reality was nothing more than a gesture of childhood. In his left hand he held some object which has disappeared—probably a lotus, symbol of resurrection, or else a cornucopia, symbol of that fruitfulness of nature which he personified. His hair, which is waved from the centre, falls in a long tress on his right shoulder. On his head he wears the Egyptian crowns of the North and South. The statuette is a characteristic Graeco-Roman work of the first century A.D. or thereabouts, and may have come from Alexandria, where the cult of Harpocrates was centred, though such statuettes appear to have been made in many parts of the Graeco-Roman world. Cf. *A.S.R.* (1912), Pl. xx, *f*. Lafaye, *Histoire du culte des divinités d'Alexandrie*, Cat. nos. 15, 16, 65, 66, 68, 71, 74, 78, 102, 103, 112, 154, 155, 157, 217, 224, 229; Dar. et Sag. *s.v.* 'Harpocrates'. For Harpocrates with cornucopia, cf. Schreiber, *Alexandrinische Toreutik*, Taf. 3, *b*, 4. (Pl. 186, *e*.)

418. Figure of Aphrodite in solid bronze relief. Height 1·68 in. Sk. '19–1,316; Block B'; sq. 29·88'; stratum II. The goddess is standing on a lotus, clad in a *himation* only, which falls from the left shoulder over the legs, leaving the body bare. Her left foot is drawn back, the weight resting on the right leg; her right hand rests on her hip, her left is raised to the shoulder grasping the top of the drapery. From the signs of attachment at the back, the figure appears to have been used as an *emblema* (Gr. ἔμβλημα) on a vase or other object. Cf. p. 194 *supra*. (Pl. 186, *b*.)

419. Copper relief of winged Eros, or possibly of Harpocrates in the guise of Eros, standing on a lotus. The god wears a cloak falling in folds from the shoulders and carries an uncertain object, perhaps a dove, in his left arm. The metal has been cast solid in an open mould. The figure probably served as an *emblema*. Height 1·75 in. Sk. '22–933, *a*; Block C'; sq. 49·89'; stratum II. Cf. p. 193 *supra*. (Pl. 186, *c*.)

420. Medallion of copper repoussé. Within wreath, bust with right hand raised holding a flower. Wears tunic fastened with pin on left shoulder. The technique is rough but the design, including the treatment of the wreath in different patterns, is typically Graeco-Roman. Diam. 2·31 in. Sk. '28–131; Block A'; sq. 25·90'; stratum II. Cf. p. 195 *supra*. (Pl. 172, *u*.)

B. Indian and quasi-Indian.

421. Copper figurine of woman in alto rilievo. Height 3·25 in. Sk. '24–1,670; Block K; sq. 154·68'; stratum I. She is standing with her left foot drawn back, her weight resting on the right leg. With her left hand she holds the shaft of a spear or staff; her right hand rests on her hip. Her dress consists of pyjamas and tunic reaching almost to the knees and confined by a knotted band at the waist. For ornaments, she wears a beaded girdle round her hips, a

necklace, armlets and bangles. Her hair is combed from the centre over the ears and decked out with floral ornaments. The costume is similar to that still worn in the North-West, and the ornaments also are typically Indian, but the pose is evidently copied from a classical type, possibly that of the warrior Aphrodite. Whether the figure is human or divine is uncertain. The relief is solid-cast and, like nos. 418 and 419, appears to have served as an *emblema*. Cf. p. 177 *supra*. (Pl. 186, *d*.)

422. Male figure of copper in the round. Height 4·25 in. Sk. '27–295; Block E'; sq. 74·90'; stratum II. The figure stands in a stiff frontal pose, with hands resting on hips, and is clad in a garment that passes over the left shoulder, leaving the right shoulder bare. He wears a high head-dress and necklace, and in either hand carries an uncertain object. For a statuette of the first century A.D., its style is surprising. From the narrow waist, broad hips and stiff legs, it might be thought to belong to the medieval rather than the Parthian period; and the peculiar high head-dress, though not without parallels even before the first century A.D., is suggestive of a later date. Whether the figure represents a Bodhisattva, or one of the Brahmanic deities—possibly Vishṇu or Sūrya—must, in the absence of more specific details, be left to conjecture. Cf. p. 185 *supra*. (Pl. 186, *f*.)

423. Statuette of copper in relief, depicting Maitreya seated cross-legged on pedestal, with right hand raised in the *abhaya-mudrā* and left hand holding flask. Height 2·87 in. The Bodhisattva wears a necklace and his hair is disposed in conventional ringlets somewhat resembling a wreath. At the back are three nails for attachment. From its style the statuette appears to be a work of the fifth century A.D. From Chir Tope B (Akhaurī), F 18; Dh. '21–B 74. Cf. p. 317 *supra*. (Pl. 186, *g*.)

424. Solid bronze relief of the Buddha or Bodhisattva in the *dhyāna-mudrā*. Height 3·62 in. The figure wears a moustache and is clad in the usual *saṅghāṭī* covering both shoulders. Near the navel is a round hole, like the one in the seated stucco image on the main stūpa at Jauliāñ (*q.v.*, p. 372). Crude work of the fifth century A.D. Jn. '16–249; cell 21. Cf. p. 385 *supra*. (Pl. 186, *h*.)

425. Bronze statuette of standing male figure, holding staff in right hand, and left hand on hip. Wears sleeved tunic (?), girdle tied in front, necklace, ear-pendants and hat. Metal solid cast in the round. Crude local workmanship of first century A.D. Height 3·5 in. Sk. '29–59; Block 1'; sq. 10·96'; stratum III. Cf. p. 196 *supra*. (Pl. 186, *i*.)

426. Copper statuette of female figure in the round, with hair in two plaits at back. Height 2·5 in. Sk. '13–303; Seventh Street (east); sq. 80·65'; stratum II. Crude local workmanship of first century A.D. Cf. *A.S.R.* (1912), Pl. xxiv, *c*, 3. (Pl. 185, *q*.)

427. Bronze relief of seated Bactrian camel. Incuse depression for enamel inlay. A well modelled piece of the Śaka period. Length 2·5 in. Sk. '14–1,405; Block E; sq. 77·66'; stratum IV. Cf. p. 134 *supra*. (Pl. 185, *s*.)

428. Bronze figure of cock, solid-cast in the round. Rough local workmanship. First century A.D. Height 3·25 in. Sk. '30–159; Block I; sq. 137·51'; stratum II. Cf. p. 170 *supra*. (Pl. 185, *o*.)

429. Copper figure of humped bull, solid-cast in the round. The metal is much corroded. Height 2·62 in. Sk. '24–596; Block B; sq. 34·51'; stratum III. Cf. p. 148 *supra*. (Pl. 185, *p*.)

430. Hand and wrist of copper statuette, holding bud between first finger and thumb. Bracelets on wrist. Date uncertain. Length 1·75 in. Dh. '15–693; T2; 2 ft. below surface. (Pl. 185, *r*.)

Chapter 29. SILVERWARE

Scarcity of silver in India

SILVER was a metal not easily procurable in the Panjāb. Even to-day India yields very little of it; and the Panjāb none at all. It is found in association with gold in the Kolar mines in the Mysore and at Anantapur in Madras; but those are the only mines that are now worked.[1] There are other localities, it is true, in Bihar and Orissa as well as in the Central Provinces and Central India, and even in the Kulū valley of the Panjāb, where silver occurs in association with lead, but nowadays the yield of silver from this lead-ore is too small to make its extraction a paying proposition, and it is doubtful if it could ever have been better-paying in antiquity, when the processes of extraction were more primitive. Outside India, however, there were well-known silver mines near the head of the Panjshīr valley in the Hindu Kush and others near Herāt, while in Southern Afghānistān there were rich deposits of argentiferous lead ore from which silver could also be obtained.[2]

Source of silver supply in Afghānistān, but silverware also imported by Parthians from the West

So far as Taxila was concerned, nearly all the silver that has been found there, apart from the coined metal, comes from the Parthian city of Sirkap, and inasmuch as the Parthians were in possession of a large part of Afghānistān, including the Kābul and Kandahar areas, there can be little doubt that they obtained their main supply of silver from that part of the world. Some of the Parthian silverware, however, appears to have been imported from the West; for the author of the *Periplus of the Erythræan Sea* tells us that silver and gold plate was imported into the Parthian dominions in India by way of Barbaricum at the mouth of the Indus, whence it was taken up the river to the capital of Śakadvipa at Minnagara, and we may be sure that some of the merchandise which reached Barbaricum by the sea route from the Mediterranean found its way farther up the Indus to Taxila. Nor can there be much doubt that merchandise of a like kind was imported into the North-West by way of one or other of the great trade routes from Western Asia.

Hellenistic character of much of the Taxila silverware

The Parthians, as I have frequently observed, had a great partiality for anything that smacked of Greek or Graeco-Roman culture, and one has but to glance at these silver objects (Pls. 187–9) to perceive how uncommonly Hellenistic in form many of them are, and what a ready sale they were likely to command among the Parthian residents at Taxila, particularly such articles as the *askos* (no. 2), the *phialai mesomphaloi* (nos. 10, *a–c*), the spoons (nos. 16, 17) or the Dionysus head (no. 21).

A feature, moreover, of this silverware, as well as of the silver ornaments described in chapter 30, that might tempt us, at first sight, to assign some of it to

[1] Cf. *M.I.C.* II, p. 675. [2] *Ibid.* p. 677.

a foreign source, is the marked disparity that exists in the quality of its workmanship—those pieces which are of Indian design betraying an obvious inferiority to those which are of foreign design. We must beware, however, of allowing this difference of workmanship to mislead us on this point. For it is to be observed that among the articles of non-Indian design and of very superior workmanship are to be reckoned the fine fluted goblets nos. 5, *a–c*, that these goblets are neither of Greek nor Graeco-Roman but of Parthian pattern, and that they could not therefore have been imported from the Mediterranean coasts, though they might have been imported from Parthia itself. This observation applies also, though less manifestly, to the *askos* and the *phialai mesomphaloi*; for although both types of vessels are classical, they nevertheless exhibit features which point to their having been manufactured locally, the *askos* having a high trumpet base, which is found neither in Hellenistic nor in Graeco-Roman examples of this type of vessel, while the *phialai* betray a stylisation which distinguishes them at once from their Hellenistic prototypes.

Parthian goblets

Most of the silverware probably made locally

Taking everything, indeed, into consideration, it seems likely that most of this silverware was made locally in Taxila or at any rate in the North-West of India, and that, whatever disparity there is in its workmanship or difference in its design, is due simply to the varying abilities of the craftsmen employed. Some of these craftsmen belonged, no doubt, to the local population of Hazāra, but we may well believe that the Parthians found it necessary to import others from Parthia proper or from Yavana countries in the West, partly because of their own particular predilection for Hellenistic art, which had sunk to a very low ebb under their Śaka predecessors, partly because of the general dearth of craftsmen in the newly conquered territories, many of whom may, as so often happened, have been killed off or driven away from Taxila by the Parthian conquest. Be this, however, as it may, there is abundant evidence to show that in the first century A.D. there must have been at Taxila many craftsmen well trained in Hellenistic traditions, some of whom were no doubt just as competent to work in gold or silver or copper, as others were in terra-cotta or stucco.

Hoard in house at back of apsidal temple D

As already narrated in chapter 5, a number of the silver pieces described below belonged to a hoard which, in addition to this silver plate, comprised many articles of gold and silver jewellery. This hoard was found beneath the floor of a house immediately at the back of the apsidal temple D in Sirkap; and my first impression was that the articles contained in it had probably formed part of a temple treasure hastily hidden in this most convenient spot, when the city was sacked by the Kushāns. On further reflexion, however, and with a more extended knowledge of the gold and silverwork of the Parthians, I now incline to believe that the numerous girdles, necklaces, bangles, ear-pendants, ear-rings, hair-pins and the like were the ordinary personal belongings of private citizens, and that the other silver objects with them were everyday household utensils, unconnected with any temple worship.

Ownership of articles and significance of their inscriptions

This question of ownership is of some import in connexion with the short

inscriptions engraved on six of the pieces (nos. 2, 7, 10, 11, 13, 19), all of which, except no. 11, come from the particular hoard alluded to above. Had this silverware been temple property, it would have been natural to suppose that the persons mentioned in the inscriptions, whose names are given in the genitive case, had presented the pieces to the temple; and it is in this sense that the inscriptions have been translated by Prof. Sten Konow, the editor of vol. II of the *Corpus Inscriptionum Indicarum*. On the other hand, if the pieces were ordinary household utensils, then the persons named were not the donors but simply the owners of the vessels, who had their names engraved on them, just as we know the Romans were accustomed to do, adding on occasion the date or the price paid for the articles or the weight.[1]

Denominations in local currency

The last-mentioned item is of particular interest in connexion with the currency and prevailing price of silver at the time. Three of the inscriptions give the value of the vessels in Greek staters, drachms and obols.[2] In no. 10 it is 30 staters, 2 drachms; in no. 11 it is 11 staters, 2 drachms, and 2 obols, and in no. 13 20 staters, 1 drachm. Now in the Attic currency, which was that in use throughout the old Seleucid Empire (together with Macedonia, Pergamum and Asia Minor generally), and had been adopted by the Bactrian Greeks, Śakas and Parthians, 6 obols went to the drachm, and 2 drachms to the stater or didrachm, other denominations being the tetradrachm, equivalent to 2 staters, the hemidrachm, diobol and hemiobol. In the Indo-Parthian currency, however, it is evident that

[1] For characteristic examples, cf. *B.M. Cat. of Silver Plate* (by H. B. Walters, 1921), pp. 32, 33, 36, 43.

[2] Dr John Allan is inclined to interpret these inscriptions as giving the weight rather than the value of the silver pieces. He thinks that the coins referred to were Parthian, not local Indo-Parthian denominations, the stater being in reality the Parthian tetradrachm, with a weight varying from about 228 gr. in no. 11 to 250 gr. in no. 10 and 266 gr. in no. 13, and the drachm, which was one-quarter of the tetradrachm, varying in the same ratio. But apart from this wide discrepancy in the weights, I find it hard to believe that the people of Taxila, albeit under Parthian rule, were in the habit of using foreign standards of weight based on the Parthian tetradrachm, to which they gave the name of stater, though there is no evidence that that name was used in Parthia itself. Surely it is more reasonable to suppose that the terms 'stater', 'drachm' and 'obol' referred to their own local coinage. Another difficulty is that in the middle of the first century A.D., the period to which these silver pieces belong, the Parthian tetradrachm rarely exceeded 215 gr. in weight and was generally much lighter (cf. Wroth, *B.M. Cat. Coins of Parthia*, pp. lxv and 161 *sqq.*). In support of his view Dr Allan cites several pieces of silver plate in the British Museum with Roman inscriptions giving the owners' names and the weights of the pieces, e.g. S(exti) I(uli) F(elicis), p. vi, s(emis); Aureliani s(emis) u(nciae), II (cf. Walters, *op. cit.* pp. 36, 43). It should be noted, however, that in these inscriptions the weights are specified in the recognised measures of weight, not in the currency denominations, and their evidence, such as it is, might be taken to militate against rather than to favour Dr Allan's view. Dr Allan also cites an inscription (no. 702 on p. 264) in Rapson's *Kharoshṭhī Inscriptions*, which gives the items 'Ginger 1 drachm', 'Pepper 4 staters'. But there is nothing here to show that it is the weight rather than the value of the articles which is specified. When we write 'Ginger 6*d.*' or 'Pepper 1*s.*' it is their price, not their weight, that we are denoting. Had the owners of these silver vessels wished to record their weights, they would naturally have recorded them in the ordinary weights then in use at Taxila, which, as I have shown in chapter 25, were based on the age-old unit of *c.* 53 gr. tr., and were altogether more accurate and uniform than the Parthian or Indo-Parthian coinages.

there must have been more than 2 drachms to the stater; otherwise the value in inscription 10 would have been given as 31 staters, instead of 30 staters, 2 drachms, and in inscription 11 it would have been given as 12 staters, 2 obols. How many drachms actually went to the Indo-Parthian stater is clear from the current coins themselves, among which we find only two denominations to which the name of stater and drachm could have been applied: the former a coin containing 148 gr. or thereabouts of (base) silver, and the latter a coin containing about 37 gr. In the original Attic standard the stater had contained somewhat less metal, viz,: 134·4 gr., the drachm 67·2 gr., and the obol 11·2 gr. Thus we see that, while there had been little change in the metal value of the stater, the word drachm had come to be applied to a coin equivalent in weight to a quarter of the stater, which the Greeks would have called a hemidrachm. The obol at this time may have been the common copper coin with a diameter of approximately 0·85 in. and a weight of about 155 gr.

Weight and value of staters and drachms

Inflation of silver currency and debasement of metal

Another fact that also becomes clear is that the face value of the silver denominations was considerably in excess of the amount of silver they contained. The present weight of no. 10 is 7505·3 gr. and, allowing for wear and tear, its original weight must have been approximately 7600 gr., which works out at 249·18 gr. (say, 250 gr.) to the stater. Of no. 11 the present weight is 2603·7 gr. and the original weight about 2640 gr., which works out at approximately 228 gr. to the stater. Of no. 13 the present weight is 5378 gr. and the original weight about 5400 gr., working out at 266 gr. to the stater. Thus the average value of plainly worked silver at that time appears to have been about 248 gr. to the stater; and if we set down the cost of workmanship at from 15 to 20%, which is what silversmiths generally charge in the bazaars to-day,[1] we arrive at something approaching 300 gr. to the stater for the price of the metal, which is double the amount contained in the average current stater of 148 gr.; and this, of course, takes no account of the further depreciation due to debasement of the silver itself, which in the reign of Gondophares, to which these vessels belong, was very great.

Technical processes

The technical processes employed for this silverwork are the same as those employed for gold and copperwork. These are fully described on pp. 572 ff., 582 ff. and 617 ff. and need not be again repeated. It should be remarked, however, that the finest examples we possess at Taxila of metal repoussé work (Gr. ἐμπαιστική) are the Dionysus head no. 21, and the two *paterae* nos. 14, *a*, *b*. Of these, the Dionysus head was first beaten out by hand with a hammer and then finished off with finer tools instead of being fashioned on a die or pressed into a mould like the gold reliefs nos. 96–9. The *paterae*, on the other hand, were first stamped out or fashioned in a mould and afterwards worked over with graving and other tools before being encrusted with gems or paste.

Date and findspots

All the forty-two pieces of silverware listed below appear to date from the Parthian period, and with two exceptions were found in the late Śaka-Parthian strata II and III. The two exceptions are nos. 11 and 12, *f*, which were buried

[1] For the price in 1784, cf. *Memoirs of William Hickey*, III, p. 242.

deeper than the rest in the Early Śaka stratum IV. The deposits in which the various pieces were found were as follows:

Block D. Deposit Sk. '26-4,081. Nos. 1, 2, 4, *a*, *b*, 5, *a–c*, 7, *a–e*, 8, *a–c*, 9, *a*, *b*, 10, *a*, 12, *a–e*, 13, 17, *a*, *b*, 18, 19, 20, *a*, *b*.

Block E. Deposit A = Sk. '30-382. Nos. 6, 15.
Deposit B = Sk. '13-194. Nos. 16, 21, 22.

Block D′. Deposit D = Sk. '29-1,362. Nos. 11, 12, *f*.
Deposit E = Sk. '19-933. Nos. 14, *a*, *b*.

Block F′. Deposit Sk. '29-2,278. No. 3.

Block G′. Deposit Sk. '28-2,068. Nos. 10, *b*, *c*.

CLASS I. *Jugs* (nos. 1, 2)

Type *a*:

1. Sk. '26-4,081/14; Block D; sq. 58·47′; stratum III. For the details of the hoard in which this jug and nos. 2, 4, 5, 7–10, 12, 13, 17–20 were found, see *supra*, pp. 156–7. Plain jug of silver with flat-bottom, flared mouth and small ring-handle attached to the neck. Height 5 in. Cf. p. 156 (16) *supra*; and for handled jugs, 'Pottery', ch. 23, Class XIII; 'Copper and Bronze', ch. 28, Class XIII. (Pls. 187, no. 1; 188, no. 1.)

Type *b*:

2. Sk. '26-4,081/13. From same hoard as no. 1 (*q.v.*). Silver *askos* with trumpet base and handle of knotted wire terminating in vine leaves. Length 7·87 in. The handle is attached by rivets. Inscription in Kharoshṭhī round neck: *Ka* 100 20 20 20 20 10 1 *Maharaja*(*bhrata Maṇigula*) *sa putrasa Jihoṇikasa Chukhsasa Kshatrapasa* = 'Year 191. Of Jihoṇika, the Satrap of Chukhsa, son of (Maṇigula, brother) of the Great King.' Cf. p. 156 (17) *supra*.

The form is typical of the first century B.C. to first century A.D. work. Cf. Spinazzola, *Arti decorativi di Pompei*, Pl. 277, and (in enamelled pottery) Brit. Mus. K15 and K26. For vine ornament on silver wine vessels, cf. Schreiber, *Alexandrinische Toreutik*, figs. 119–22. The trumpet base appears to be a local peculiarity (cf. the bowls nos. 8, *a–c infra*), but it occurs in Sasanian metalwork, probably derived from Parthian and perhaps ultimately from Achaemenid prototypes. Cf. Sarre, *Kunst des alten Persien*, Pls. CXX, CXXVIII, CXXXV, etc. The genitive *Jihoṇikasa* is probably to be understood in an absolute sense, as implying that the date was 'during the reign of' Jihoṇika (Zeionises), but it may be possessive, implying, as in nos. 7, 10, etc., that the *askos* was the property of Jihoṇika. Cf. *A.S.R.* (1926), Pl. XXVII, 1 and p. 114, no. 3; and for inscription, *C.I.I.* II, pt. 1, p. 82, and Pl. XVI, *a*, *b*, *c*, *d*. For inscriptions on Graeco-Roman silverware, cf. Schreiber, *op. cit.* pp. 380–400. (Pls. 187, no. 2; 188, no. 2.)

CLASS II. Aryballoi *or scent-flasks* (nos. 3, 4). Cf. 'Pottery', ch. 23, Class III; 'Stone', ch. 25, Class XI·I; 'Copper and Bronze', ch. 28, Class VI

3. Sk. '29-2,278/1; Block F′; sq. 96·81′; stratum II. Long-necked scent-flasks or *aryballoi* of silver, provided with a lid. Height 4·75 in. The lid is fastened to a ring round the neck by means of a chain, some of the links of which are missing. The bottom is decorated with incised concentric circles. For this and other articles found with it in Block F′, see p. 182 *supra*. (Pls. 187, no. 3; 188, no. 3.)

4, *a*, *b*. Sk. '26-4,081/17. From same hoard as no. 1 (*q.v.*). Two *aryballoi* of silver: height 2·5 in. The lids are attached to the neck by a chain and ring. Cf. p. 157 (18) *supra*; *A.S.R.* (1926), p. 114, no. 4 and Pl. XXVII, 2. (Pls. 187, no. 4; 188, no. 4.)

CLASS III. *Goblets* (no. 5, *a–c*). Cf. 'Pottery', ch. 23, Class XIV, *c*; 'Stone', ch. 25, Class XIII; 'Copper and Bronze', ch. 28, Class XIV

5, *a–c*. Sk.'26–4,081/15. From same hoard as no. 1 (*q.v.*). Three silver goblets with carinated and fluted bodies. Heights 5·25, 6·12 and 7 in. Cf. p. 157 (19) *supra*.

Many examples of this type of goblet, made of copper, bronze, and earthenware, have been found at Taxila. ('Copper and Bronze', nos. 272, 273, Pl. 174; 'Pottery', no. 91, Pl. 124.) The shape may have been affected by the Hellenistic *kantharos*, though without the handles; but it seems rather to have been derived from the prehistoric earthenware beaker with pointed bottom.

In all these metal goblets the bases are much too small for the size and weight of the vessel. Seemingly, the beverage was meant to be drunk at one draught. For the horizontal fluting, cf. the gold bowl from the Oxus treasure figured in Dalton, *The Treasure of the Oxus*, no. 17, Pl. VII, and the *rhyton* from Erzinjan in Armenia (*ibid.* no. 178, Pl. XXII). (Pls. 187, no. 5, *a*, *b*; 188, no. 5, *a*, *b*.)

CLASS IV. *Bowls and cups* (nos. 6–9). Cf. 'Pottery', ch. 23, Class XV, *d*; 'Stone', ch. 25, Class X; 'Copper and Bronze', ch. 28, Class XII

Type *a*. *Bowls with rounded bottoms and with or without flared mouths.*

6. Sk. '30–382/1; Block E; sq. 67·66′; stratum III. From same find as no. 15 *infra*. Silver bowl with round bottom, flared mouth and cordon moulding round middle. Diam. 4·56 in. Thick metal. For the shape, cf. 'Pottery', nos. 105, 106; Dalton, *The Treasure of the Oxus*, no. 18 (p. 82) and no. 180 (p. 120) and *Compte Rendu* (1880), p. 223; Atlas, Pl. III, fig. 5. See also p. 162, nos. 19, 20 *supra*. (Pl. 187, no. 6.)

7, *a–e*. Sk.'26–4,081/24. From same hoard as no. 1 (*q.v.*). Five shallow bowls of silver with round bottoms. Two of them bear the same inscription in Kharoshṭhī, viz.: *Theütaras(y)a Thavaraputras(y)a* = 'Of Theodorus, the son of Thavara.' Cf. p. 157 (20) *supra*; *C.I.I.* II, pt. I, p. 97 (nos. 1, 2) and Pl. XIX, nos. 1, 2; *A.S.R.* (1926), p. 115, no. 13. (Pls. 187, no. 7, *a*, *b*; 188, no. 7, *a*, *b*.)

Type *b*. *Bowls with low standard bases.* Of the Greek *kylix* pattern, but without handles.

8, *a–c*. Sk. '26–4,081/23; stratum III. From same hoard as no. 1 (*q.v.*). Three circular silver bowls with shallow trumpet base soldered to bottom. Diam. 7·75 and 7·87 in. Cf. p. 157 (21) *supra*; *A.S.R.* (1926), p. 115, no. 11; Pl. XXVII, 9. (Pls. 187, no. 8; 188, no. 8.)

9, *a*, *b*. Sk. '26–4,081/26; stratum III. From same hoard as no. 1 (*q.v.*). Two silver cups with shallow base. Diam. 3·87 in. Cf. p. 157 (22) *supra*; *A.S.R.* (1926), p. 114, no. 6 and Pl. XXVII, 4. (Pls. 187, no. 9; 188, no. 9.)

CLASS V. *Dishes and plates* (nos. 10–12). Cf. 'Pottery', ch. 23, Class XVI; 'Stone', ch. 25, Classes VII, VIII; 'Copper and Bronze', ch. 28, Class XVII

10. Sk. '26–4,081/21. From same hoard as no. 1 (*q.v.*). Round silver dish with raised boss in centre, terminating in knob and surrounded by six incised concentric circles. Diam. 8·75 in.; weight 7505·3 gr. Inscription in Kharoshṭhī on body: *Miṁjukritasa sa* 20 10 *dha* 2 = '(Property) of Miṁjukrita: 30 staters, 2 drachms.' Cf. p. 157 (23) *supra*. This vessel is a much stylised version of the familiar Greek *phiale mesomphalos*, which was most popular in the third and second centuries B.C. Two similar dishes of silver (10, *b*, *c*) were found in Block G′, House III in Sirkap (Sk. '28–2,068; sq. 101·86′; diam. 12·5 and 12·75 in. respectively) along with a coin of Zeionises, but without any inscription. Cf. *A.S.R.* (1928), p. 58, no. 71 and Pl. XXII, 6. Three similar dishes of copper, and others of terra-cotta and stone have also been unearthed on

the same site. Cf. 'Copper and Bronze', ch. 28, no. 289; 'Pottery', ch. 23, no. 109; and 'Stone Objects', ch. 25, nos. 39, 40. See *A.S.R.* (1926), p. 115, no. 12 and Pl. XXVII, 10; and, for the inscriptions, *C.I.I.* vol. II, pt. I, pp. 99 (4) and Pl. XIX–4. (Pls. 187, no. 10; 188, no. 10.)

11. Sk. '29–1,362/4; Block D′; sq. 62·113′; stratum III. Silver saucer with flat base, carinated sides and everted rim. Diam. 6·12 in.; weight 2603·7 gr.; on base, concentric countersunk circles and between them inscription in Kharoshṭhī: *Aśpavarmasa strategasa Sa* 10. 1. *Dra* 2. *O* 2. = 'Of Aśpavarma, the *strategos*. 11 staters, 2 drachms, 2 obols.' For the shape, cf. 'Pottery', no. 107. Aśpavarma, son of Indravarma, was '*strategos*' during the reigns of Azes II and Gondophares. He was succeeded by his 'nephew' Sasas, but not in the office of *strategos*. The title *strategos* was inherited by the Śakas and Parthians from the Seleucid Empire. What precisely the title implied is uncertain. In the *Cambridge History of India* it is translated 'commander-in-chief'; by others it has been interpreted as the equivalent of satrap. That it implied something more than 'commander-in-chief' seems probable from the fact that Aśpavarma struck coins in his own name as *strategos*. On the other hand, it is evident that there was a distinction at Taxila between *kshatrapa* and *strategos*. Cf. ch. 2, p. 62 *supra*. For deposit D of Block D′, with which this saucer (no. 4) and other articles of gold and silver were found, see ch. 6, p. 188 *supra*. (Pl. 187, no. 11.)

12, *a–e*. Sk. '26–4,081/25. From the same hoard as no. 1 (*q.v.*). Five circular saucers of silver with flat bases, slightly concave underneath, and everted sides and lip. Diam. 5·62–8·25 in. Cf. p. 157 (24) *supra*; *A.S.R.* (1926), p. 114, no. 5, and Pl. XXVII, 3. Other silver saucers of the same type have been found in Sirkap, e.g. no. 12, *f* = Sk. '29–1,362/5, which came from the same deposit as no. 11 *supra*. (Pls. 187, no. 12; 189, no. 12.)

CLASS VI. *Rectangular plate on legs* (no. 13)

13. Sk. '26–4,081/20. From the same hoard as no. 1 (*q.v.*). Rectangular plate of silver, with curved rim, on four legs, one of which is missing. Size 8·8 × 6·12 in.; weight 5,378 gr. The legs, like the bases of the goblets, are an alloy of silver and copper, the copper being added probably to assist the soldering or welding of the metal. On the back is a short inscription in Kharoshṭhī, which reads: *Muṁjukritas(y)a sa* 20 *dra* 1 = '(Property) of Muṁjukrita, 20 staters, 1 drachm.' Cf. p. 157 (25) *supra*; *C.I.I.* II, pt. I, p. 98 (3) and Pl. XIX, 3. For another example of a rectangular dish (*lanx quadrata*), cf. *B.M. Cat. of Silver Plate*, no. 87, and Odobesco, *Le Trésor de Petrossa*, p. 111, fig. 42. (Pls. 187, no. 13; 188, no. 13.)

CLASS VII. Paterae *of repoussé and incrusted silver* (no. 14, *a*, *b*)

14, *a*, *b*. Sk. '19–933/8; Block D′; deposit E; sq. 59·114′; stratum II. Two dishes or *paterae* of silver repoussé, once incrusted with gems or paste. Diam. 6·5 in. The repoussé decoration is disposed in concentric circles—a small ring in the middle surrounded by pear-shaped cloisons; then a wreath divided into six sections, with varying patterns; and round this, again, a swag border followed by a beaded edging. The incrustation was in the central ring, the pear-shaped cloisons and the swag border. For the pear-shaped cloisons, see Dalton, *Treasure of the Oxus*, no. 18, Pl. VIII. Parthian period. *A.S.R.* (1919), p. 19 and Pl. VIII, 5. For details of the hoard in which these two *paterae* (no. 5) were found, see pp. 188–9 *supra*. (Pls. 187, no. 14; 189, no. 14, *a*, *b*.)

CLASS VIII. *Ladles and spoons* (nos. 15–17). Cf. 'Copper and Bronze', ch. 28, Classes XX and XXI, nos. 306–18, and 'Iron', ch. 27, Class VI, no. 24

15. Sk. '30–382/2; Block E; sq. 67·66′; stratum III. Ladle of silver with ring-handle, similar to the copper ladles nos. 306–8. Length 7·12 in. On the outside of the bowl is a short

Kharoshṭhī inscription of six letters, of which three only are legible, viz.: *.ma ya. .sa.* From same findspot as no. 6 (*q.v.*). Cf. p. 162 (20) *supra*. (Pl. 187, no. 15.)

16. Sk. '13–194/2; Block E; sq. 77·66'; stratum II. From the same hoard as the Dionysus head no. 21. Silver spoon with handle terminating in cloven hoof and attached to the spoon by a rat-tail ridge. Length 6·37 in. This pattern of spoon was fashionable in the Hellenistic world from about 300 B.C. onwards, and a favourite one in Italy in the first century A.D. This one may either have been imported from the Mediterranean or copied from a Graeco-Roman model. Cf. the copper spoons nos. 312, 313; *A.S.R.* (1912), p. 26, no. 2 and Pl. XX, *i*. For other objects from the same hoard, see pp. 159–60 *supra*. (Pls. 187, no. 16; 189, no. 16.)

17. Sk. '26–4,081/16. From the same hoard as no. 1 (*q.v.*). Silver spoon with plain straight handle terminating in knob. The bowl of the spoon is shovel-shaped and very shallow. Length 6·25 in. Cf. p. 157 (26) *supra*; *A.S.R.* (1926), p. 115, no. 16. In the same hoard was also found the broken handle of another silver spoon terminating in a leaf (length 2·87 in.). (Pls. 187, no. 17; 189, no. 17, *a*, *b*.)

CLASS IX. *Strainers* (nos. 18, 19)

18. Sk. '26–4,081/18. From same hoard as no. 1 (*q.v.*). Circular strainer, with broad flat rim furnished with ring-handle. Diam. 6·75 in. Cf. p. 157 (27) *supra*; *A.S.R.* (1926), p. 115, no. 9 and Pl. XXVII, 7. For earthenware strainers, see 'Pottery', ch. 23, Class XVIII, type *b*, and for examples in silver, Dar. et Sag. I, p. 1331, *s.v.* 'Colum', and *B.M. Cat. of Silver Plate*, nos. 129, 146. (Pls. 187, no. 18; 189, no. 18.)

19. Sk. '26–4,081/19. From same hoard as preceding. Basket-like strainer of silver, fitted with ring-handle on either side. Height 5·12 in. On the outside, just below the rim, is a Kharoshṭhī inscription: *Gomanada-putras(y)a Jhaṁdanamas(y)a* = '(Property) of Jhaṁdanama, son of Gomanada.' Cf. p. 157 (28) *supra*; *A.S.R.* (1926), p. 115, no. 7 and Pl. XXVII, 5; and for the inscription, *C.I.I.* II, pt. I, p. 99 (5) and Pl. XIX, 5. The strainer is evidently a silver imitation of the *kalathos* or basket used in Greece and elsewhere for the straining of milk, etc. Also known as ἠθμός, σχοίνινος, or ὑλιστήρ. Observe, however, that the plaiting is merely imitation in thin silver relief. Cf. Dar. et Sag. *s.v.* 'Calathus', fig. 1003. (Pls. 187, no. 19; 189, no. 19.)

CLASS X. *Lids for large open-mouthed vessels* (no. 20, *a*, *b*). Cf. 'Pottery', ch. 23, Class XXVII, *b*

20, *a*, *b*. Sk. '26–4,081/22; stratum III. From same hoard as preceding. Two circular concave lids of silver. Diam. 8·5 in. In the middle of the concave upper side is a looped handle in the form of a fish soldered, apparently with copper, to the lid. Cf. p. 157 (29) *supra*; *A.S.R.* (1926), p. 115, no. 10 and Pl. XXVII, 8. For concave lids of earthenware, see 'Pottery', nos. 186–92, types *a–c*. (Pls. 187, no. 20; 189, nos. 20, *a*, *b*.)

CLASS XI. *Miscellaneous* (nos. 21, 22)

21. Sk. '13–194/1; Block E; sq. 77·66'; stratum II. From same hoard as no. 16 (*q.v.*). Head of Dionysus or Silenus, in silver repoussé, with stand beneath. Height 3·75 in. The relief of the head is 1·25 in. deep; the metal is extremely thin and brittle, and there is a break near the right ear and at the base of the rim. The head of the god is bald on top and wreathed with a grape-vine. His ears are pointed. In his right hand he holds a two-handled wine-cup (*kantharos*). Behind his head passes the curved staff (*thyrsos*), with a bell suspended at its end. The front of the stand is adorned with a conventional palmette, and a rosette beneath; behind, is a curved 'thumb-piece' which enabled the head to be set in a slanting position on the table. The stand closely resembles the handle of a *kylix* and was probably made for that purpose. For the form of the stand, cf. Schreiber, *Alexandrinische Toreutik*, figs. 52–4, 60, 61, 71, etc.

and Taf. 1–3; *B.M. Cat. of Jewellery*, p. 240, no. 2112. For the bearded type of Dionysus holding a *kantharos*, cf. Dar. et Sag. *s.v.* 'Bacchus', pp. 627 ff. and figs. 709, 710, and *s.v.* 'Cantharus', p. 893, n. 8, where numerous examples are cited. The *kantharos* is of a type which was in fashion about 300 B.C., but the relief may be a first century copy of older work. Cf. p. 159 (1) *supra*; *A.S.R.* (1912), p. 26, no. 1 and Pl. xx, *a*. (Pl. 209, *a*.)

22. Sk. '13–194; Block E; sq. 77·66'; stratum II. Circular boss of shield (Gr. ὀμφαλός) composed of two thin plates, an iron one on the inside, a silver one on the outside, riveted together at the edge with six silver nails. Diam. 4·69 in. At the back were three looped cross-pieces for the attachment of the handle. Compare the shield bosses in 'Iron Objects', ch. 27, nos. 93–5 and Pl. 45, and 'Copper and Bronze', ch. 28, nos. 388, 389. This shield-boss was used to close the mouth of the earthen jar containing nos. 16 and 21 *supra* and a quantity of gold jewellery. Cf. pp. 159–60 *supra*. (Pl. 187, no. 22.)

Chapter 30. GOLD AND SILVER JEWELLERY

Contents of collection

OF THE 213 items of jewellery, almost all gold, which are described below, the majority, to the number of 180, come from the later strata in the city of Sirkap, and belong with few exceptions to the first century A.D. Of the remaining pieces, twenty-seven are from the Bhiṛ Mound and date from the fifth to the early second century B.C., while six come from the Buddhist settlements at the Dharmarājikā, Jauliāñ and Giri (see Stratigraphical Chart, p. 622).

Prevailing Greek and Graeco-Roman character

In style, the jewellery is, for the most part, distinctively Greek or Graeco-Roman; and this is true of the few pieces from the Bhiṛ Mound as well as of the much larger number from Sirkap. Among the former, the only piece that may possibly be Indian in design is the silver necklace no. 55, but even this is questionable. The rest of the Bhiṛ Mound pieces, or those at any rate that possess a distinctive character, viz. nos. 1, 52, 80–3, 133–6 and 166, are all clearly copied from Hellenistic prototypes. Similarly, of the objects from Sirkap, the vast majority are Greek or Graeco-Roman. The only ones that are characteristically Indian are: the anklets nos. 148–65, the decoration of which is akin to that found in the Early School of Central India; the swastika device on the amulets nos. 85, *a–d*; and the *nandipada* on the hair-pin no. 101, and on the torque no. 147, but the hair-pin itself is not of Indian pattern and the torque, like its fellows, is definitely traceable to a foreign—probably Scythic or Persian—source. Scythic and Sarmatian influence may also be seen in the heavy incrustate bracelets nos. 137–43, the closest analogies to which are furnished by certain bracelets from the Crimea and neighbouring districts dating from the fourth century B.C.[1] Among the Sirkap jewellery there are also a few patterns and motifs of which the origin is doubtful. Such are the kidney-shaped bangles with trumpet ends nos. 116–32; the bell-like pendants nos. 11–13; the heart-shaped ear-rings nos. 48–51 (though the clustered granules at their base are certainly a Western touch); the circlet pattern of the necklaces nos. 60 and 61; the spearhead-and-drop pattern of necklace no. 62; and the interlocking merlon motif of the breast-chain no. 75. Apart from these, the whole collection of this first-century jewellery from Sirkap is typically Greek or Graeco-Roman in character and fundamentally different from contemporary Indian

[1] Cf. Dar. et Sag. *s.v.* 'Armilla', p. 436 and fig. 529, where, however, the design of the bracelet is treated as Greek, not as Scytho-Greek. For Greek, Scythic and Sarmatian jewellery from South Russia, see Rostovtzeff, *Iranians and Greeks in South Russia* and *The Animal Style in Russia and China*; Dalton, *Treasure of the Oxus* (2nd ed.).

jewellery, as we see it depicted in the reliefs of Sāñchī, Bharhut and other monuments of the Early Indian School.

Technical processes

It is significant also, as indicating the extent of foreign influence on craftsmanship as well as design, that the technical processes employed in the manufacture of this Taxila jewellery are identical with those employed throughout the Greek and Graeco-Roman world. These processes are as follows:

Moulds

Much of the jewellery from Taxila was made with the help of moulds or dies. Specimens of the former are illustrated among 'Stone Objects', ch. 25, nos. 141–53; specimens of the latter among 'Copper and Bronze Objects', ch. 28, nos. 37–203. The stone moulds were of two types, according as they were intended for the production of solid or hollow pieces of jewellery. In the former case the mould was a closed one. It was made, that is to say, of two or more pieces which fitted together, and was provided with a channel cut in the stone for pouring in the molten metal. Examples of this type of mould are the 'Stone Objects', nos. 141–3 and 146–50. With them may be compared the moulds figured in Dar. et Sag. *s.v.* 'forma', fig. 3178, and in Schreiber's *Die Alexandrinische Toreutik*, fig. 1, etc. The other type was an open mould of one piece only and without any channel for pouring in the metal. Examples of this type are the 'Stone Objects', nos. 144, 145, 151 and 152. This latter type was used chiefly for taking an impression on a thin sheet of gold or silver by pressing it into the cavities of the design—the work being subsequently finished off by hand with the help of punches and gravers. But moulds of this type might also be used (as nos. 151 and 152 appear to have been used) for casting the copper dies for goldwork which are described below. An inherent disadvantage of these 'impression' moulds is that the thinnest sheet-metal only could be used for pressing into the cavities of the stone, and the resultant jewellery would be of the flimsiest kind and, unless a very small piece, would have to be made up on a core of lac, mastic, sulphur, or other such substance. To overcome this difficulty, the jewellers of Taxila had recourse to copper or bronze dies, on which heavier gold or silver sheeting could be hammered out. A large assortment of such dies, evidently cast in moulds, was found amidst a jeweller's stock-in-trade in the Śaka-Parthian city of Sirkap and is described and illustrated among 'Copper and Bronze Objects', nos. 37–203. Whether specimens of Greek or Roman dies of this kind have been discovered is not known to the writer. If they have, their existence appears to have gone unnoticed by the many writers on ancient jewellery. It is noteworthy, however, that Pernice, one of the foremost authorities on the subject, held the view, which he reinforced by practical experiment, that gold and silver ornaments could not be satisfactorily cast in stone moulds of the kind described above, and he concluded that such moulds, even if they were provided with channels, were used only for the production of wax models from which the metal casts were afterwards taken.[1] Pernice's view, however, has been contested by other writers. In the light afforded by the

Dies

[1] Cf. Pernice in *Jahreshefte d. Oesterr. Archäol. Instituts in Wien* (1904), pp. 180 ff., and *B.M. Cat. of Jewellery*, p. liii.

recovery of these metal dies at Taxila, the suggestion may now be advanced that, in some cases at any rate, the moulds were used for the production of metal dies on which the more precious metals were beaten into shape preparatory to their being graved and finished off by hand.

Granulation

The technique of granulation, by which is meant the decoration of a gold surface with fine granules (Lat. *pulvisculus aureus*) was known in Greece and the Near East almost from time immemorial. It was known to the jewellers of Egypt in the VIth Dynasty and to those of Troy and Mycenae; to the Phoenicians and Etruscans and to the Greeks of the Geometric Period; and it continued to be practised in Greece and Italy and Asia Minor well down into Roman times, though as time went on the granulation tended to become relatively coarse.[1] In the medieval age, however, the technique was wholly forgotten, and though rediscovered in part by Castellani in 1878, has never been satisfactorily explained until quite recently, when Mr W. T. Blackband succeeded in producing granulated work as perfect as the best of that turned out by Etruscan jewellers.[2] The outcome of his long and successful experiments is to show: (*a*) that the gold granules were made by precipitating the molten metal from varying heights (according to the size of granule required) on to a baffle and thence on to a bed of charcoal dust, the effect of which is to cause the granules to roll into perfect spheres; (*b*) that the solder used for this work by the ancient jewellers was an alloy of gold and copper, and that when the work was finished, all signs of the copper were removed from the surface by heating it in sal-ammoniac; (*c*) that the granules were controlled and held in position by capillary attraction, a filament of the solder described above being used for this purpose, which was then melted on the surface and disappeared without leaving any trace. In view of the difficulties involved in this technique and the fact that it was so long forgotten by the jewellers of Europe and not entirely rediscovered until the last decade, it is safe to conclude that it could not have been independently evolved in the Panjāb, but must have been introduced there along with so many other arts and crafts of the Hellenistic and Graeco-Roman world. The most perfect examples of patterned granulation at Taxila are to be seen on the tooth-amulet no. 80, and the amulet case no. 82, both of which date from the third or early second century B.C. Of 'field grainwork', as it is known, that is, of granulation covering the whole surface, the finest specimens are afforded by the ear-pendants nos. 11 and 12, and the necklaces nos. 56 and 59, where the granules covering the alternate pendant knobs are as fine almost as dust.

Another method of decorating gold and silver ornaments which India learnt from the Graeco-Roman world, was that known as filigree. This is effected by soldering fine wire to the surface of the metal, the wire being either plain, twisted, plaited into a chain or beaded. Examples of the first three types of wire-work may be seen in the disk pendants nos. 3–6, as well as in nos. 81, 137, 138, 140 and 141.

[1] For fuller details of the history of this technique, see the writer's article 'Buddhist Gold Jewellery' in *A.S.R.* (1902–3), pp. 189–90, and the list of authorities there cited. Also *B.M. Cat. of Jewellery*, pp. liii and lv.

[2] Cf. *Illus. London News* (April 1934), pp. 658–9.

Examples of beaded filigree are nos. 7, 8, 26–8, 52, 61, 142 and 143. Fine wire was also plaited into chains, as in nos. 2–6, or fashioned into openwork beads like nos. 56 and 70, which might or might not be filled with coloured paste.

Incrustation

If the art of granulation and filigree was a Western one, it is certain that the art of incrusting jewellery and other objects with gems was of Eastern origin, and that it was rarely practised in the Mediterranean area until the Graeco-Macedonian period, when the conquests of Alexander had opened up the Orient, and that it was still further popularised there after Pompey's victories in the East.[1] But in whatever country the art originated, whether in India itself[2] or in Persia[3] or among the Scythians, with whom it seems to have been peculiarly popular, it is evident from the designs themselves of the jewellery found at Taxila and the manner in which the gems are applied, that the vogue for incrustation which arose at Taxila in the first century A.D. was the direct outcome of the Parthian occupation. In this jewellery the incrustation is of two kinds. In one, the gems or paste are enclosed in small compartments or cloisons, contiguous to one another and covering the whole surface, e.g. nos. 167 and 168; in the other, they are studded here and there about the design either in cloisons or in box-settings, e.g. nos. 137–9. In the necklaces nos. 56–8, half the pendants are cloisonné, the rest centred with a single gem.

Semi-precious stones

The semi-precious stones used in jewellery at Taxila were: carnelian or sard, chalcedony, agate, onyx, garnet, jasper, lapis lazuli, rock-crystal, turquoise and turquoise paste, black marble and white orthoclase felspar. Most of these stones and their provenance are discussed in chapters 25 (pp. 477–9) and 37 (pp. 731 ff.), and further details will be found in H. Beck's Memoir (no. 65), *The Beads from Taxila*.[4] It is noteworthy that the semi-precious stones used at Taxila for incrustation were much the same as those used by Greek and Graeco-Roman and Graeco-Scythic jewellers, though orthoclase felspar was not, so far as I am aware, used by the latter, and turquoise is commoner in India, no doubt because it was more easily procured.[5]

Gold

Gold, which, to judge by the number of gold ornaments found at Taxila, seems to have been abundant there under the Parthians, has a wide distribution in India. Most Indian rivers, as well as those in Assam and Northern Burma, yield alluvial gold in small quantities, and those which flow north and east from the plateau of Chota Nagpur, including the Sōn river (Sk. *Hiranya-vaha* = gold-carrying) are

[1] Cf. Pliny, *N.H.* XXXVII, 12; Furtwängler, *Antike Gemmen*, III, pp. 153 ff.; Marshall, 'Buddhist Gold Jewellery', *loc. cit.* p. 191; *B.M. Cat. of Jewellery*, p. lviii; Dar. et Sag. *s.v.* 'Gemma'.

[2] The Indian King Sopeithes is said to have worn golden sandals studded with jewels and to have carried a golden staff studded with beryls (Q. Curtius, *Hist. Alex.* IX, 1, 5). And the pavilions of Indian kings are said to have been bejewelled (Claudian, *Stilicho* I, 158; and cf. Ch. de Linas, *Les Origines de l'orfèvrerie cloisonnée*, t. I, p. 187).

[3] Athenaeus (XI, 17) quoting from Parmenion's letters, speaks of quantities of bejewelled cups (ποτήρια λιθοκόλλητα) among Alexander's Persian booty.

[4] Cf. also *M.I.C.* ch. XXXII.

[5] The following are the Greek and Latin equivalents for these stones, so far as they are known. Carnelian or sard = σάρδιον, *sardius*; chalcedony = according to Furtwängler, *iaspis*; garnet = ἄνθραξ, *carbunculus*; lapis-lazuli = σάπφειρος, *sapphirus*; rock-crystal = κρύσταλλος, *crystallus*; turquoise = ? *callais* or *Persicus smaragdus*; pearl = μαργαρίτης, *margarita*.

more than ordinarily rich in it. There are many ancient gold workings also in Hyderabad State, the Madras Presidency, and the Mysore, where the Kolar district to-day yields over 90% of India's total production (about £2,000,000 annually). In ancient times there may also have been a substantial supply from Dardistān and Tibet, which are said to have yielded the well-known 'ant-gold' (Sk. *pipīlika*) of classical writers.[1] In Afghānistān, gold also occurs in the neighbourhood of Kandahār and on the north side of the Hindu Kush, while a certain amount is said to be washed from the streams draining the Kūh-i-Bāba in Kohistān and above Laghmān and Kunar. Although, however, there were many possible sources of supply in India and Afghānistān, the yield is hardly likely, even before the introduction of a gold currency by the Kushāns, to have been an adequate one, since a prodigious amount of the precious metal went into jewellery. On the eastern side of India the supply was probably supplemented by imports from Assam, Burma and Malay (Aurea Chersonesus), where gold mines of ancient date have been discovered in the State of Pahang (Schoff, *Periplus*, p. 259, para. 63). In the North-West, especially after the establishment of the Kushān Empire, the supply was supplemented by imports from the Near East by way of the Persian Gulf, through which the Kushāns must normally have conducted their trade with the West (Warmington, *op. cit.* p. 299).[2] In confirmation of this it may be noticed that an ingot of gold found in the Śaka-Parthian city of Sirkap (no. 214 *infra*), although without a stamp, bears a significant resemblance to the ingots which were traded in the Roman world.[3] The old idea that India was a land of gold, which many writers still persist in repeating, was perhaps due to the fact that so much wealth was sunk in gold jewellery, but it is certainly wide of the mark.[4]

Some general remarks on the jewellery from the Bhir Mound will be found in vol. I at pp. 101, 104, 106 and 111, and on the jewellery from Sirkap at pp. 134, 203. Other references are given in the individual entries of the catalogue below.

CLASS I. *Ear-pendants and ear-rings* (nos. 1–53)

Most of the specimens found at Taxila are of Greek or Graeco-Roman design. The chief types are as follows:

(*a*) *Amphora type*. Ear-pendants (ἐνώτια) of this type were in vogue in the Graeco-Roman world from the third century B.C. onwards, but became particularly fashionable in the first century A.D. From the places of their provenance it has been

[1] Cf. p. 14, n. 1 *supra*.

[2] Cf. Schoff, *Periplus*, pp. 258, 259. Strabo, quoting Gorgos the mining engineer, says that mines of gold and silver existed not far from the Salt Range in the Panjāb (presumably in the Himālayas) but that the Indians were unacquainted with mining and the smelting of ores. That may well have been the case in the Panjāb, but it is no proof that mining was not practised in the south of India, of which nothing was then known.

[3] Cf. *B.M. Cat. of Jewellery*, Pl. LXXII; Dar. et Sag. *s.v.* 'Metalla', p. 1865.

[4] Cf. *C.H.I.* I, pp. 343 and 403, where the supposed abundance of gold in India is said to have militated against the circulation of the Persian *daric* in those regions, the ratio of gold to silver being 1:13·3 in Persia and 1:8 in India. Assuming that the latter ratio is correct, its explanation may lie rather in the exceptional dearness of silver than in the cheapness of gold.

inferred that the design originated in Syria or Egypt, and that the not infrequent specimens found in late Etruscan tombs of the third or second century B.C. were imports from one or other of those countries. At Taxila the earliest example (no. 1) dates from the third to second century B.C. The other example is of the first century A.D. Cf. *B.M. Cat. of Jewellery*, pp. xliii-iv and nos. 2356–7, 2442–3, and Pls. LI and LII.

(*b*) *Disk-and-pendant and bar-and-pendant types.* In Greece this type goes back to the early sixth century B.C. and continues without interruption to the third century A.D. Cf. *B.M. Cat.* pp. xxxiii, and 180–3; Pl. XXX, nos. 1662, 1663, 1672, 1673, 1675, etc.; Pl. XL, no. 2064.

(*c*) *Leech-and-pendant type.* The 'leech' ear-ring, which can be traced back to Mycenaean times, does not appear to have survived in Greece itself after the fourth century B.C., though in the modified form of a flat crescent it was still found as late as the second century A.D. In Etruria, however, it continued on until at least the third century B.C., the later examples being frequently distinguished by the pendent clusters of drops and granules attached to the leech. The bud-pendants, which are characteristic of the Taxila specimens, may have been evolved in Western Asia or Egypt during the later Hellenistic period. Cf. *B.M. Cat. of Jewellery*, pp. xxxiii, xl, and nos. 321 ff., 1653–61, 2239–40, 2252, 2256, 2258, 2259, 2262; and for the 'leech' motif in *fibulae*, nos. 1376–81, etc., and Dar. et Sag. III, p. 445, fig. 4017, and fn. 11, where references are given to examples from the Crimea as well as from Etruria.

(*d*) *Flower-and-pendant type.* In this type the pendant takes the form of a flower, usually six-petalled, hanging downward, with the tips of its leaves attached to a beaded ring from which chains and bells are suspended. The type calls to mind the 'tassel' pendants of Graeco-Roman jewellery, e.g. *B.M. Cat.* Pl. LI.

Besides the elaborate types of pendants described above, two simpler kinds of ear-rings are also found at Taxila, viz.:

(*e*) *Ring type.* This is a small ear-ring of solid gold with the ends twisted back in a spiral round half or more of the ring. In some specimens the ring is thickened at the base. Greek ear-rings of this type exhibit the same method of binding the drawn-out ends spirally round the ring, but in the earlier examples, which go back to the fifth century B.C. and were favourite in Hellenistic times, one apex of the ring usually terminates in an ornamental head (of a lion, bear, tiger, maenad, negro, Eros, etc.); later examples are commonly without this ornament. Cf. *B.M. Cat.* pp. xxxiii-xxxiv, and Pls. XXXI, XXXII and LIII.

(*f*) *Heart-shaped type.* Whether this type of ear-ring derived from Greek or Graeco-Roman prototypes is questionable. The small clusters of globules at the base of the rings is certainly a Western touch, but the shape was familiar in India as far back as the Chalcolithic period, as attested by bracelets and other articles from Harappā and Mohenjo-daro.

1. Gold ear-pendant of 'amphora' type. Height 1·7 in. It consists of two separate pieces, the upper one attached to the lower by means of a hook which passes through a hole in the — Amphora type

STRATIGRAPHICAL CHART OF GOLD AND SILVER JEWELLERY

Class	Bhir Mound strata				Sirkap strata					Other sites (Dh. = Dharmarājikā Jn. = Jauliāñ)	Class
	IV 5th to 6th century B.C.	III 4th century B.C.	II Maurya	I Surface	VII ? Pre-Greek	VI–V Greek	IV Early Śaka	III–II Late Śaka-Parthian	I Surface		
I. Ear-pendants and ear-rings (nos. 1–53)	—	52	1	—	—	—	46	2–30, 33–45, 48–51, 53	31, 32	47 from Dh.	I
II. Necklaces (nos. 54–74)	—	54, 55	—	71, 72	—	—	69	56–68, 70, 74	(60)	73 from Dh.	II
III. Girdles, breast-chains and belts (nos. 75–9)	—	—	—	—	—	—	—	75–9	—	—	III
IV. Amulets and pendants (nos. 80–95)	81	87	—	80, 82, 83, 86, 88, *a–c*	—	—	—	84, *a*, *b*, 85, *a–d*, 89–94, *a–c*	—	95, *a–d* from Jn.	IV
V. Brooches (nos. 96–9)	—	—	—	—	—	—	—	96–9	(97, 99)	—	V
VI. Hair-pins (nos. 100, 101)	—	—	—	—	—	—	—	100, 101	—	—	VI
VII. Bangles and bracelets (nos. 102–43)	—	—	—	133–6	—	—	—	102–32, 137, 138, 140–3	—	—	VII
VIII. Torques (nos. 144–7)	—	—	—	—	—	—	144	145, 146	147	—	VIII
IX. Anklets (nos. 148–65)	—	—	—	—	—	—	—	148–65	—	—	IX
X. Miscellaneous (nos. 166–219)	—	199, 200	—	166, 204–10	—	—	178, 203	167, 168, 170–7, 179–98, 211–13, 215–19	—	169 from Giri 201, 202 from Jn.	X

Note! Nos. 90, 139 and 214, which were found in spoil earth in or near Sirkap, are not included in the above chart or in the Table on p. 623.

TABLE SHOWING DISTRIBUTION OF JEWELLERY IN SIRKAP

Block	Strata VI–V Greek	Stratum IV Early Śaka	Strata III–II Śaka-Parthian	Stratum I Surface
		EAST SIDE OF MAIN STREET		
1	—	—	—	—
A	—	—	—	—
B	—	—	13, 14, 58, 66, 102, 103, 122–4, 167, 168	—
C	—	—	—	—
D	—	—	3–6, 15–24, 48–51, 62, 67, 74, 78, 79, 101, 125–32, 146, 148–65, 179–98	—
E	—	—	9, 10, 30, 35, 42, 43, 59, 60, 64, 68, 70, 91, *a*, *b*, 97, 99, 116–19, 211–13	(60) (97, 99)
F	—	—	177	—
G	—	—	53	—
H	—	—	—	—
I	—	—	—	—
J	—	—	—	—
K	—	—	29, 44, 45, 65, 77, 216–19	—
L	—	—	—	—
		WEST SIDE OF MAIN STREET		
1′	—	—	176	—
A′	—	—	—	—
B′	—	203	215	—
C′	—	—	—	—
D′	—	46, 69, 144, 178	2, 7, 8, 11, 12, 26–8, 33, 34, 36–41, 56, 57, 61, 63, 75, 76, 84, *a*, *b*, 85, *a–d*, 92, *a–d*, 93, 94, *a–c*, 96, 98, 100, 104–15, 120, 121, 137, 138, 142, 143, 170–5	31, 32, 147
E′	—	—	—	—
F′	—	—	—	—
G′	—	—	25, 89, 140, 141, 145	—
H′	—	—	—	—
K′	—	—	—	—

latter. The upper piece takes the form of a full-blown flower, of which the six outer petals are granulated, the inner ones plain. At the centre of the corona was a gem (now missing) enclosed in a beaded circlet. Between the outer leaves are four clusters of granules set on wire tendrils. The lower piece consists of an amphora with dolphin handles, from the tails of which depend four chains ending in pearl drops. The body of the amphora is of turquoise adorned with granulated triangles of gold and with a cluster of gold globules beneath its base. From the Bhiṛ Mound. Stratum II. See vol. 1, p. 106. For dolphin handles of amphorae in Greek ear-pendants, cf. *B.M. Cat. of Jewellery*, nos. 2331–3, and for other examples of the dolphin motif, *ibid.* nos. 1677, 1678, 1681, 2067, 2108, 2426–32, 2626, 2627, 2840. (Pl. 190, *a*.)

2. Gold ear-pendant in two pieces, the upper attached to the lower by means of a hook, which passes through a hollow cylinder in the latter. Height 4·37 in. The upper portion is built up on a square framework of flat gold wire, subdivided into four small squares. At the back

of this is a somewhat broader band of gold ending in two hooks which project beyond the framework on either side; at the point of projection the base of each hook is enriched with a small circlet edged with granules. The ornament on this framework consists of a quatrefoil central flower, with sprays of three small leaves springing from the tips of its four obcordate petals, and rosettes alternating with them at the corners. Both rosettes and leaves were inlaid with turquoise paste. The central flower is finely granulated and further enriched with a corona of five obcordate petals also inlaid with turquoise, on which a gold cupid is reposing. The lower piece consists of an amphora in the centre, and on either side of it an infant Eros riding on a winged sea-lion, from which hang four plaited chains ending in a pearl and leaf terminal, with a cluster of granules at the bottom of each leaf. The amphora is of beaded gold filigrain, with panels of turquoise paste between. It is set upon a three-stepped base, from which hang five gold drops with a cluster of four tiny granules on each. The granules are of solid metal; the larger drops hollow. The cylinder on the top of the amphora has a beaded rim of gold granules. The winged cupids and sea-monsters appear to have been cast in a mould, and afterwards chased with a graving tool. The hair of the cupids, which falls on the shoulders in a natural row of ringlets, is very carefully worked. The wings and ears of the monsters and the wings of their riders both front and back are inlaid with turquoise, some pieces of which are missing. First century A.D. Sk. '29–1,507/1; Block D'; sq. 64·92'; stratum II. Cf. *A.S.R.* (1929), p. 64, no. 50 and Pl. XVIII, 2.

For a pair of somewhat similar gold pendants purchased by me in Rāwalpindi, see *A.S.R.* (1902–3), pp. 186–7, Pl. XXVIII, 1, 2. Other objects from the same hoard included nos. 57, 61, 96 and 137, 138 *infra*. See vol. I, p. 186, Deposit A, no. 1. (Pl. 190, *c*.)

Disk-and-pendant and bar-and-pendant types

3, 4. Pair of gold ear-pendants of 'disk-and-pendant' type. Diam. 1·25 in. The face of the disk is adorned with a full-blown flower surrounded by concentric bands of beading, scroll and chainwork. Between the points of the petals are globules of gold, and in the centre a beaded circlet, once filled with turquoise paste. The outer petals of the flower are embossed with imitation granules; the inner petals are plain. At the top of the disk is a trefoil fleur-de-lys with a small ring behind, the cloisons of which were once filled with paste. From the base depend five plaited chains ending in gold beads. First century A.D. Sk. '26–4,081/6; sq. 58·47'; Block D; stratum III. Cf. p. 156, no. 1 *supra*; *A.S.R.* (1926), p. 14, no. 10, and Pl. XXVI, 12, 13. From the same hoard as nos. 5, 6, 15–24, 48–51, 62, 67, 74, 78, 79, 101, 125–32, 146, 148–65, 179–98. (Pl. 190, *d*.)

5, 6. Similar to preceding, but no outer petals to flower, and round flower complete circle of hemispherical globules in place of fine beading; rim of double-twisted wire, and four chains beneath, ending in gold beads and leaf-points. Diam. 1·25 in. Same age and findspot as preceding (*q.v.*). Cf. p. 156, no. 2 *supra*; *A.S.R. loc. cit.* no. 11. (Pl. 190, *f*.)

7, 8. Pair of gold ear-pendants consisting of an oblong bar surmounted by a crescent and trefoil device, which take the place of the more usual disk. Height 1 in. The bar and trefoil are relieved with circular depressions surrounded by fine wire beading. From the base of the bar hang five small disks suspended on wires. For kindred patterns in Graeco-Roman jewellery, cf. *B.M. Cat. of Jewellery*, Pl. LV, nos. 2668–70; for the crescent motif, *ibid.* Pl. LI, nos. 2356, 2357 and 2359. First century A.D. Sk. '29–1,241/21; Block D'; sq. 62–113'; stratum III. Other objects from the same hoard included: 'Jewellery', nos. 11, 12, 26–8, 33, 34, 36–41, 56, 63, 75, 76, 85, 92, 93, 98, 100, 105–15, 120, 121, 142, 143, 170–5; 'Finger-rings', nos. 2, 3, 9, 17; 'Shell', no. 49; 'Coins', R.U.C. nos. 209, 216. See vol. I, pp. 187–8, Deposit C, no. 1. Cf. *A.S.R.* (1929), p. 61, no. 50 and Pl. XIX, 10, 11. (Pl. 190, *b*.)

Leech-and-pendant type

9, 10. Pair of gold ear-pendants of 'leech-and-pendant' type, consisting of a plain leech crescent with clasp and a 'bud' pendant suspended from it by a movable ring. Length 3·62 in. The leech is of thin plate-gold shaped on a core of lac or pitch. The clasp, which is attached by means of a ring hinge, is of 'double-leech' pattern ornamented with a cinquefoil

rosette, two hearts and a narrow strap. The rosette and hearts were inlaid with stones or pastes which are now missing. The pendent buds are covered with fine granulation and their five points end in clusters of drops and granules. The ring to which the bud is attached is decorated on the outside with a double row of beads divided one from the other by a fine beading. At the top of the leech crescent is a small ring by which the ornament was suspended from the ear. First century A.D. Sk. '13-194/5-6; sq. 77·66'; Block E; stratum II. Cf. *A.S.R.* (1912), p. 26, nos. 5, 6 and Pl. XXI, *b*, 1, 2, 3, 5. The Greek practice, common among the jewellers of Taxila, of filling hollow ornaments of gold-foil with solid substances such as pitch, wax, mastic, etc., is alluded to in the temple inventories of Delos, where we read, for example, of μῆλα χρυσᾶ κηρωτῆς μεστά and μῆλα χρυσᾶ ἔνια πλήρη γῆς. Cf. *B.M. Cat. of Jewellery*, pp. xxxvi and xxxvii. Other objects from the same hoard were: 'Jewellery', nos. 30, 35, 42, 43, 59, 64, 68, 70, 91, 116-19, 211-13. 'Finger-rings', nos. 13-16. 'Silverware', nos. 16, 21. 'Copper and Bronze', no. 417. Cf. vol. I, p. 159, no. 3. (Pl. 190, *g*.)

11, 12. Pair of gold ear-pendants similar to the preceding. Length 4·87 in. The double-leech clasp is ornamented at the centre with a female bust superimposed on a lotus rosette, at the top with a cinquefoil lotus with obcordate petals, and at the bottom with a beaded circlet. The pendant ring is relieved on the outside with three rows of beads and granules, and there are four small stars, besides the granulation, on the shoulders of the buds. First century A.D. Sk. '29-1,241/2; Block D'; sq. 62·113'; stratum III. Cf. p. 187, no. 2 *supra*; *A.S.R.* (1929), p. 59, no. 2 and Pl. XVIII, 1, 3. For other objects from same hoard, see nos. 7, 8 *supra*. (Pl. 190, *i*.)

13, 14. Pair of gold ear-pendants similar to nos. 9 and 10. Length 3·62 in. First century A.D. Sk. '24-683/1; Block B; sq. 31·47'; stratum II. Cf. p. 147, no. 1 *supra*; *A.S.R.* (1924), p. 49, no. 1, Pl. XI, 9-10. For other objects in the same hoard, see vol. I, p. 147.

15-24. Five pairs of gold ear-pendants of leech-and-pendant type similar to the preceding, with slight variations in details of clasps. Length from 2·37 to 3 in. First century A.D. Sk. '26-4,081/2; sq. 58·47'; stratum III. Cf. p. 156, no. 3 *supra*; *A.S.R.* (1926), p. 113, no. 8, and Pl. XXVI, 9, 10. For other objects from same hoard, see nos. 3, 4 *supra*. (Pl. 190, *h*.)

25. Single ear-pendant similar to the above. Length 3·5 in. First century A.D. Sk. '29-2,193/3; Block G'; sq. 108·87'; stratum II. Cf. *A.S.R.* (1929), p. 67, no. 77. Other objects from the same hoard included: 'Jewellery', nos, 140, 141, 145; 'Finger-rings', no. 6. See vol. I, p. 180.

26, 27. Pair of gold ear-pendants of flower-and-pendant type. Height 2·62 in. The flowers are composed of six petals, strengthened by granulated ribbings, with small heart-shaped cloisons at their base, once filled with paste or stones. Attached to the points of the leaves is a beaded ring from which hang six quadruple plaited chains ending in small bells. At the top is a small ring for suspension. This may be the ornament known as κημός to the Greeks, which resembled the funnel-shaped top of a voting urn or a horse muzzle. For the pendent bell motif, cf. *B.M. Cat. of Jewellery*, Pl. LV, nos. 1576, 1660, 1661, 2078, 2668, 2996, 3008, 3009. The same motif, evidently adapted from jewellery, is frequently depicted on Indian sculptures of the Early School. From the same hoard in Block D' as nos. 7, 8 (*q.v.*). Cf. p. 187, no. 3 *supra*; *A.S.R.* (1929), p. 59, no. 3 and Pl. XVIII, 7. (Pl. 190, *e*.) Flower-and-pendant type

28. Single ear-pendant similar to preceding, and from same hoard. Height 2·75 in. (Pl. 190, *e*.)

29. Single ear-pendant similar to preceding and of same age. Height 2·62 in. Sk. '28-2,679; Block K (palace); sq. 157·43'; stratum II. Cf. *A.S.R.* (1928), p. 59, no. 81, *a* and Pl. XXI, 10. Other objects from the same hoard included: 'Jewellery', nos. 44, 45, 65, 77, 216-19; 'Finger-rings', nos. 8, 10. See vol. I, p. 174.

30. Single ear-pendant similar to preceding and of same age. Height 2·62 in. Sk. '13-194/7; sq. 77·66'; Block E; stratum II. Cf. p. 159, no. 4 *supra*; *A.S.R.* (1912), p. 26, no. 7 and Pl. XXI, *b*, 5. For other objects from same hoard, see nos. 9, 10 *supra*.

31, 32. Pair of small ear-rings of gold wire with the ends coiled back in a spiral and com- Ring type

pletely covering the rings. False clasps of 'double-leech' pattern. As the rings have no opening, they must have been suspended from the ear by a separate ring or hook. Diam. 1·15 in. First century A.D. Sk. '33–667; Block D'; sq. 63·85'; stratum I. Cf. p. 191 *supra*. (Pl. 191, *a*.)

33, 34. Pair of ear-rings similar to preceding but with coil covering only half the rings and without false clasp. Diam. 0·75 in. First century A.D. Sk. '29–1,241/15; Block D'; sq. 62·113'; stratum III. Cf. p. 187, no. 4 *supra*; *A.S.R.* (1929), p. 60, no. 14. For other objects from same hoard, see nos. 7, 8 *supra*. (Pl. 191, *b*.)

35. Single gold ear-ring similar to nos. 33, 34. Diam. 0·62 in. Sk. '13–194/16; sq. 77·66'; Block E; stratum II. Cf. p. 159, no. 5 *supra*; *A.S.R.* (1912), p. 27, no. 16 and Pl. XXII, *a*. For other objects from same hoard, see nos. 9, 10 *supra*. (Pl. 191, *c*.)

36–41. Three pairs of small leech-like ear-rings of gold, with ends twisted back in fine spiral over two sides of the ring, leaving the base plain. Diam. 0·43–0·62 in. First century A.D. Sk. '29–1,241/23; Block D'; sq. 62·113'; stratum III. Cf. p. 187, no. 5 *supra*; *A.S.R.* (1929), p. 61, no. 23. For other objects from same hoard, see nos. 7, 8 *supra*. (Pl. 191, *d*.)

42, 43. Pair of gold ear-rings similar to preceding and of same age. Diam. 0·58 in. Sk. '13–194/15; sq. 77·66'; Block E; stratum II. Cf. p. 159, no. 6 *supra*; *A.S.R.* (1912), p. 27, no. 15 and Pl. XXII, *a*. For other objects from same group, see nos. 9, 10 *supra*.

44, 45. Pair of gold ear-rings similar to preceding and of same age. Diam. 0·56 in. Sk. '28–2,679/6; palace; sq. 157·43'; stratum II. Cf. p. 174 *supra*; *A.S.R.* (1928), p. 60, no. 81, *b* and Pl. XX, 3. For other objects from same hoard, see no. 29 *supra*. (Pl. 191, *e*.)

46. Single gold ear-ring similar to above and of same date. Diam. 0·5 in. Sk. '29–1,362/3; Block D'; sq. 62·113'; stratum IV. Cf. *A.S.R.* (1929), p. 62, no. 45. For other objects from same hoard, which was buried at the close of the Parthian period in the first century A.D., see vol. I, p. 188, Deposit D.

47. Single ear-ring of solid gold with pedestal base supporting pendant of two pearls. Height 0·95 in. This appears to be a later development of the ear-rings described above (nos. 31–41). Fifth century A.D. Dh. '14–892, between P 10 and P 7. See vol. I, p. 268 and no. 73 *infra*. Cf. *A.S.R.* (1914), Pl. XII, 1. (Pl. 191, *f*.)

Heart-shaped type

48–51. Two pairs of hollow gold ear-rings of heart-shape type. Diam. 0·87 in. At the top is a clasp working on a pivot hinge; at the base, a cluster of four granules. First century A.D. Sk. '26–4,081/7; sq. 58·47'; stratum III. Cf. p. 156, no. 4 *supra*; *A.S.R.* (1926), p. 113, no. 1 and Pl. XXVI, 3. For other objects from same hoard, see nos. 3, 4 *supra*. (Pl. 191, *g*.)

***À baule* type**

52. Single gold ear-ring of cylindrical form with five parallel strips of vertical beading on the outside and five projecting knobs at the top. Length 0·31 in. The beading is stamped, not granulated, and soldered to the strips of plain gold between. This ornament appears to be an ear-ring of the *à baule* type, which was fashionable in Etruria, where it was probably introduced from the East in the sixth and fifth centuries B.C. Whether the type survived to a later date in the Near East is not known. The single specimen from Taxila was found on the Bhiṛ Mound in a hoard referable to the last quarter of the fourth century B.C. Bm. '24–556, *c*; sq. 32·26'; stratum III. Cf. *A.S.R.* (1924), p. 48; *B.M. Cat. of Jewellery*, p. xxvii and nos. 1286 ff. For an ear-ring of kindred pattern of modern Indian manufacture, cf. Hendley, *Indian Jewellery*, Pl. XCVII, no. 659. Other objects from the same hoard were nos, 54, 55, 199, 200 *infra*. For further details of the hoard, see vol I, pp. 104, 106. (Pl. 191, *i*.)

Snake type

53. Small ear-ring of silver in form of snake with scaly body. Diam. 0·81 in. First century A.D. Sk. '12–707; sq. 115–63'; stratum II. Cf. p. 169 *supra*.

CLASS II. *Necklaces* (nos. 54–74)

All the more elaborate necklaces described below are easily recognisable as Greek or Graeco-Roman in design. The simpler ones may be local Indian patterns. Two only

of these necklaces (nos. 54, 55) come from the city on the Bhir Mound and are assignable to the close of the fourth century B.C.; the rest date from the first century A.D.

54. Necklace of thirty spherical beads with seventeen spacer circlets. Diam. of beads, 0·31–0·37 in. The beads, of impure gold, are gadrooned and collared; the spacers, of pure gold, are embellished with bands of drops and granules in varying patterns. The collars of the beads are made separately and soldered on. From same hoard as no. 52 (*q.v.*). Cf. *A.S.R.* (1924), p. 48, l. 19. (Pl. 192, *a.*)

55. Silver necklace of thirty-seven pendants. Height 0·68 in. The pendants are hollow and consist of a hemispherical drop with a T-shaped top. The top is decorated with incised lines and pierced laterally with two holes. The back and front are made separately and soldered. From same hoard as preceding. (Pl. 192, *c.*)

56. Gold necklace of twenty-three pendants with twenty spacer beads and two terminals. Height of pendants 1·87 in. The pendants are of two patterns, alternating with one another. One pattern consists of an oval crystal *en cabochon* in a beaded setting enclosed by two dolphins affrontés, from the tails of which hang three chains ending in flat disks. At the top is a spherical knob with finely granulated surface, pierced laterally for suspension. The fishes are of thin repoussé gold with backs soldered on; the neck above is made in a separate piece. The other pattern consists of a quatrefoil device of seven cloisons inlaid with flat pieces of white orthoclase felspar, with three chains and disks hanging from the base and a knob of plain instead of granulated gold at the top. The spacing beads are of openwork metal, composed of twelve circlets inlaid with white orthoclase felspar and strengthened with studs of gold granules. The two terminals take the form of 'ox-heads' inlaid with orthoclase felspar and black agate and outlined with a granulated beading. The necklace was strung on two strings, one passing through the beads at the top of the pendants, the other through a series of small horizontal tubes soldered on to their backs. At the back of the terminals are two tubes to take the strings. For the double dolphin motif, cf. no. 1 above and references there cited, and for the openwork beads, no. 59 below and *B.M. Cat. of Jewellery*, Pl. LIII, no. 2567. First century A.D. Sk. '29–1,241/7 and 10; Block D'; sq. 62·113'; stratum III. Cf. p. 187, no. 6 *supra*; *A.S.R.* (1929), p. 60, no. 7 and Pl. XIX, 16. For other objects from same hoard, see nos. 7, 8 *supra*. (Pl. 193, no. 56.)

57. Gold necklace of thirty-one pieces, including two terminals. Height of pendants, 1·19 in. The pendants are of two patterns, alternating. One pattern consists of a small circlet of gold centred with a carbuncle and edged round with a double granulated beading; at the base is an openwork obcordate attachment enclosing a triple cluster of granules, and above it a spherical bead covered with fine granulation and pierced laterally for a string. The other pattern is of quatrefoil form made up of seven cloisons inlaid with white orthoclase felspar; the obcordate attachment below encloses a tiny heart-shaped cloison inlaid with white orthoclase felspar instead of granule clusters, while the bead at the top is plain instead of granulated. The terminals, which are composed of nine cloisons, are inlaid with white orthoclase felspar and lapis-lazuli. The necklace was strung in the same way as no. 56. First century A.D. Sk. '29–1,507; Block D'; sq. 64·92'. Cf. p. 186, Deposit A, no. 2 *supra*; *A.S.R.* (1929), p. 65, no. 53 and Pl. XIX, 4. For other objects from the same hoard, see no. 2 *supra*. (Pl. 193, no. 57.)

58. Gold necklace of twenty-seven pendants including two terminals. Height of pendants 1·06 in. The design resembles that of no. 57, but half the pendants were inlaid with rock crystal *en cabochon* instead of carbuncles, and the others with blue turquoise paste in the centre and top cloisons and white orthoclase felspar in the four leaves. There are triple clusters of granules also in all the obcordate attachments at the base of the pendants and small spacing beads on the upper string. First century A.D. Sk. '24–683/2; sq. 31·47'; stratum II. From same hoard as nos. 13, 14 (*q.v.*). Cf. p. 147, no. 2 *supra*; *A.S.R.* (1924), p. 49, no. 2 and Pl. XI, 2. (Pl. 193, no. 58.)

59, *a–f*. Six cylindrical pendants belonging to a necklace; length 0·83 in. The casing is of gold openwork of various designs, in which network, figures-of-eight and clustered granules are prominent; the cores are of green jasper and turquoise paste. To the upper side of the cylinders two small rings are attached for suspension. For the use of cylinders in necklaces, cf. *B.M. Cat. of Jewellery*, pp. xlviii, xlix and Pl. LVII, no. 2697, etc., and for openwork in gold, *ibid.* no. 2030. First century A.D. Sk. '13–194/13; Block E; sq. 77·66'; stratum II. Cf. p. 159, no. 7 *supra*; *A.S.R.* (1912), p. 27, no. 13 and Pl. XXII, *a*. For other objects from same hoard, see nos. 9, 10 *supra*. (Pl. 191, *h*.)

60. Gold necklace of seventy-four pieces, pierced laterally with two holes for strings. The pieces are hollow, and made in two sections with soldered backs. On the face of each is a row of five tangent circlets with depressed centres. Length 0·75 in. They were fashioned by pressing a thin gold sheet into a metal matrix, like those illustrated in nos. 42–4 of the 'Copper and Bronze Objects' (Pl. 179). First century A.D. Sk. '13–194, *a*/7; Block E; sq. 77·65'; strata I–II. Cf. *A.S.R.* (1912), p. 28, no. 7 and Pl. XXII, *b*, 4. Other objects from the same hoard are: 'Jewellery', nos. 97, 99; 'Finger-rings', nos. 71–3; 'Coins', R.U.C. nos. 201–8, 211–15, 217–21, 258–60. Cf. vol. I, p. 160, no. 3.

61. Gold necklace of eighty-four pieces, similar to no. 60, but with four instead of five circlets on each piece. Length of each piece 1 in. First century A.D. Sk. '29–1,507/3; Block D'; sq. 64·92'; stratum II. Cf. p. 186, Deposit A, no. 3; *A.S.R.* (1929), p. 65, no. 52 and Pl. XVIII, 10. For other objects from the same hoard, see no. 2 *supra*. (Pl. 193, no. 61.)

62. Gold necklace of eighty-nine pieces of the 'spearhead-and-drop' pattern (Gr. λόγχιον = Indian *campā-kāli*). The pieces are hollow and pierced laterally through the head and middle for two strings. Length of each piece 1 in. Examples of the copper matrices on which they were fashioned or cast are figured among the 'Copper and Bronze Objects', nos. 45, 47, 50, 51, 129 (Pls. 179, 180). First century A.D. Sk. '26–4,081/4; sq. 58·47'; stratum III. Cf. p. 156, no. 5 *supra*; *A.S.R.* (1926), p. 114, no. 12; and for similar motif in Greek jewellery, *B.M. Cat. of Jewellery*, nos. 1943, 1946. For other objects from same hoard, see nos. 3, 4 *supra*. (Pl. 192, *d*.)

63. Gold necklace of 132 hollow spherical beads. Diam. 0·19–0·25 in. As usual, they are made in two hemispheres soldered together. First century A.D. Sk. '29–1,241/9; Block D'; sq. 62·113'; stratum III. Cf. p. 187, no. 7 *supra*; *A.S.R.* (1929), p. 60, no. 9. For other objects from same hoard, see nos. 7, 8 *supra*. (Pl. 192, *e*.)

64. Gold necklace of sixty beads of similar pattern to the preceding. First century A.D. Sk. '13–194/20; Block E; sq. 77·66'; stratum II. Cf. p. 159, no. 8 *supra*; *A.S.R.* (1912), p. 27, no. 20 and Pl. XXII. For other objects from same hoard, see nos. 9, 10 *supra*. (Pl. 192, *e*.)

65. Gold necklace of forty-four hollow beads similar to preceding. Diam. 0·12–0·19 in. First century A.D. Sk. '28–2,679/5; palace; sq. 157·43'; stratum II. From same hoard as nos. 29 (*q.v.*), 44, 45, etc. Cf. p. 174 *supra*; *A.S.R.* (1928), p. 60, no. 81, *f* and Pl. XXI, 4.

66. Gold necklace of eighty-three plain tubular beads. Length 0·37–0·62 in. First century A.D. Sk. '24–683/6; sq. 31·47'; stratum II. From same hoard as nos. 13, 14 (*q.v.*). Cf. p. 147, no. 6 *supra*; *A.S.R.* (1924), p. 49, no. 6. (Pl. 192, *f*.)

67. Similar to the preceding, with twenty-three tubular beads. Length 0·5 in. First century A.D. Sk. '26–4,081/3; sq. 58·47'; stratum III. Cf. p. 156, no. 6 *supra*; *A.S.R.* (1926), p. 114, no. 14. For other objects from same hoard, see nos. 3, 4 *supra*.

68. Gold neck-chain composed of four double plaits fitted with hook-and-ring fastener. Length 19·62 in. First century A.D. For similar plaited chains, cf. *B.M. Cat. of Jewellery*, Pl. XXXIII, 1954, 1955; Pl. LIX, 2725, 2735; Pl. LXVII, 2845, 2846, etc. Sk. '13–194/12; Block E; sq. 77·66'; stratum II. Cf. p. 159, no. 9 *supra*; *A.S.R.* (1912), p. 27, no. 12 and Pl. XXII, *a*. For other objects from same hoard, see nos. 9, 10 *supra*. (Pl. 192, *g*.)

69. Five links of small gold chain of 'reel-and-link' pattern. Length 1·25 in. First century B.C. For chains of similar pattern of the Hellenistic period, cf. *B.M. Cat. of Jewellery*, Pl. XXXVI,

1974 and Pl. XXXVIII, 1976, 1977. Sk. '29–1,204; Block D'; sq. 58·117'; stratum IV. Cf. *A.S.R.* (1929), p. 65, no. 55 and Pl. XIX, 7. Although found in stratum IV, this chain may date from the Parthian period. See vol. I, pp. 134, 191. (Pl. 191, *j*.)

Miscellaneous necklace beads

70. Seven spacer beads of openwork gold, originally inlaid with paste. Diam. 0·3 in. For similar spacer beads, cf. no. 56 *supra*. First century A.D. Sk. '13–194/14; Block E; sq. 77·66'; stratum II. Cf. p. 159, no. 10 *supra*; *A.S.R.* (1912), p. 27, no. 14 and Pl. XXII, *a*. For other objects from same hoard, see nos. 9, 10 *supra*.

71. Five lozenge-shaped beads of gold. From same hoard as nos. 72, 80, 82, 83, 88, 166, 204–10; 'Copper and Bronze', no. 7; 'Pottery', no. 173; 'Seals', nos. 11, 28, *a*; 'Coins', R.U.C. no. 39. Length 0·43 in. Third to second century B.C. Bm. '12–26/5; stratum I. Cf. *A.S.R.* (1912), p. 41, no. 7. For details of hoard, see vol. I, pp. 110–11.

72. Two gadrooned and collared beads of gold similar to the beads belonging to necklace no. 54 above. Diam. 0·37 in. Bm. '12–20/4. From same hoard as preceding. Cf. *A.S.R.* (1912), p. 41, no. 6.

73. Four spherical beads of gold, two plain and two fluted. Diam. 0·4 and 0·48 in. Fifth century A.D. Dh. '14–892. Found with the ear-ring no. 47 (*q.v.*). Cf. p. 268 *supra*; *A.S.R.* (1914), Pl. XII, 2–5.

74. Four necklace terminals of gold, composed of two small fishes with one tail. The fishes are of thin gold and hollow. There are holes in the fishes' heads for two strings which meet together in the tail. Length 0·75 in. First century A.D. Sk. '26–4,081/8; sq. 58·47'; Block D; stratum III. Cf. p. 156, no. 7 *supra*; *A.S.R.* (1926), p. 113, no. 7; and for other objects from same hoard, see nos. 3, 4 *supra*. Fishes used as ornamental motifs or as amulets were common in India, as in other countries, from the earliest times. For the Indus period, for example, cf. *M.I.C.* p. 557 and Pl. CXXXII, 19, 30, 32, 40; on punch-marked and tribal coins, Allan, *B.M. Cat. of Anc. Ind. Coins*, pp. xix, xxix, lxii, 44, 56, 83, etc.; and for other examples at Taxila, no. 78 *infra*; 'Finger-rings', no. 24; 'Copper and Bronze', no. 28. (Pl. 191, *k*.)

CLASS III. *Girdles, breast-chains and belts* (nos. 75–9)

Besides the necklaces described above, there are some longer or larger ornaments of a kindred kind which seem likely to have been used as breast-chains or belts or girdles rather than as necklaces. Such ornaments (Gr. ζώνη, ζωστήρ; Skr. *mekhalā*) were used by both Greeks and Indians. All date from the first century A.D.

75. Gold breast-chain or girdle of 494 pieces. Width 0·31 in. The pieces, which are of thin sheet-gold, resemble stepped merlons, alternately reversed, so as to fit one into another. They are pierced with two sets of holes for threading. For the stepped merlon motif in modern Indian jewellery from Hazāra, cf. T. H. Hendley, *Indian Jewellery*, Pl. 42, no. 287. First century A.D. Sk. '29–1,241/11; Block D'; sq. 62·113'; stratum III. Cf. p. 187, no. 8 *supra*; *A.S.R.* (1929), p. 60, no. 10, and Pl. XVIII, 8. For other objects from same hoard, see nos. 7, 8 *supra*. (Pl. 194, *c*.)

76. Gold girdle or necklace of 130 pieces of double crescent shape. The pieces are of thin metal and hollow, fashioned on a matrix such as those illustrated in 'Copper and Bronze', nos. 37, 38, 40, 41, 106–8, 168–76. Width 0·62 in. First century A.D. Sk. '29–1,241/8; Block D'; sq. 62·113'; stratum III. For the shape, see also 'Beads', p. 741. Cf. p. 187, no. 9 *supra*; *A.S.R.* (1929), p. 60, no. 8 and Pl. XVIII, 9. For other objects from same hoard, see nos. 7, 8 *supra*. (Pl. 194, *d*.)

77. Gold girdle or necklace of 116 pieces of lily pattern. The pieces are of thin gold, hollow within and pierced with two transverse holes for strings. Width 0·56 in. First century A.D. Sk. '28–2,679; palace; sq. 157·43'; stratum II. Cf. *A.S.R.* (1928), p. 60, no. 81, *e* and Pl. XXI, 1. For other objects from same hoard, see no. 29 *supra* and p. 174. (Pl. 194, *a*.)

78. Seven pieces of gold belt or girdle of fish pattern, comprising six groups of three fishes abreast, and a circular medallion for the clasp. The fishes, which are 1·37 in. long, are of thin, stamped gold, hollow within, and united on the underside by thin transverse strips of gold. Holes are pierced in their mouths and tails for three strings. Pl. 179, no. 79 illustrates the type of copper matrix on which they were fashioned. The face of the medallion (diam. 1·37 in.) is decorated in cloisonné with a heart and leaf stellate design within a beaded border. The hearts and beading are inlaid with white orthoclase felspar; the centre and leaves with rock-crystal. Attached to its back are three small rings on one side and a single ring on the other, intended for uniting the three threads of the belt. First century A.D. Sk. '26–4,081/9; sq. 58·47'; Block D; stratum III. Cf. p. 156, no. 8 *supra*; *A.S.R.* (1926), p. 113, nos. 2, 5 and Pl. XXVI, 4, 7. For the fishes see no. 74 *supra* and cf. Furtwängler, *Goldfund von Vettersfelde*, Pl. I, republished in his *Kleine Schriften*, I, pp. 469–516 and Pl. XVIII; Schreiber, *Alexandrinische Toreutik*, p. 301, fig. 21; Dalton, *Treasure of the Oxus*, Pl. VI, no. 16 and other examples cited. For other objects from the same hoard in Block D, see nos. 3, 4 *supra*. (Pl. 194, *b*.)

79. Two groups of three fishes each, belonging to a gold belt or girdle similar to no. 78. Length of fishes, 1·62 in. Same age and findspot as preceding (*q.v.*). Cf. p. 156, no. 9 *supra*; *A.S.R.* (1926), p. 113, no. 6 and Pl. XXVI, 8.

CLASS IV. *Amulets and pendants* (nos. 80–95)

Amulets and pendants have been classed together in this section because it is impossible in some cases to be sure whether a particular pendant has an amuletic value or not. That the claw or tooth pendant (no. 80), the swastikas (no. 85), the pipal leaves (no. 88), the bell (no. 89), and the clubs (nos. 91, 92), were employed as amulets is beyond question, and it is equally certain that nos. 82–4 were intended to hold relics or charms of some sort. But it is not so clear whether nos. 86, 87, 90, 93, 94 and 95 were designed as amulets or merely as ornaments. Coins, for example, or coin impressions, were certainly used as amulets in Roman times and became very popular during the third century A.D. (e.g. *B.M. Cat. of Jewellery*, nos. 2727, 2735, 2860, 2868–70, 2875, etc.), but whether the same superstition attached to them in India is doubtful.

80. Claw or tooth amulet. Length 1·12 in. The core is of lead covered, except at the point, with a thin sheath of gold. On the front side the gold is decorated with a granulated design of small hexagons enclosed in beaded borders. In the centre of each hexagon is a rosette of granules. The tooth or claw is pierced transversely by three holes for suspension. Third to second century B.C. Bm. '12–20/1. For other articles from the same hoard, see no. 71 *supra* and p. 111. Cf. *A.S.R.* (1912), p. 41, no. 2 and Pl. XXXIX, *d*, 2. Amulets of this kind were fashionable among both Greeks and Romans, being credited with specific apotropaic and other powers. Cf. Dar. et Sag. *s.v.* 'Amuletum', I, p. 254, and for two specimens from Chiusi of about the third century B.C., cf. *B.M. Cat. of Jewellery*, Pl. XLVII, nos. 2278, 2304. On the other hand, the tiger tooth or claw was probably prized as an amulet as highly in ancient as in modern India. (Pl. 191, *o*.)

81. Gold sheath of tooth-amulet (length 0·75 in.) decorated on surface with fine filigree wire in criss-cross pattern. Found in stratum IV, of fifth to sixth century B.C., but may be a later stray. Bm. '19–1,858; sq. 10·38'. Cf. p. 101 *supra*.

82. Oblong amulet-case or reliquary of silver (length 0·87 in.), decorated on three sides with fine granulated designs of flowers and geometric patterns in beaded borders. One side is pierced with two holes for suspension. Bm. '12–20; stratum I. For other articles from the same hoard, see no. 71 above. Cf. *A.S.R.* (1912), p. 41, no. 1 and Pl. XXXIX, *d*, 1. (Pl. 191, *p*.)

83. Oblong amulet case of gold, square in section. Length 0·62 in. The decoration is obliterated. From the same hoard as preceding.

84, *a*, *b*. Two cylindrical amulet cases of gold, furnished with two rings each for suspension and decorated with parallel circles round middle. Length 0·62 in. First century A.D. Sk. '19–933/4; Block D'; sq. 59·114'; stratum II. For cylindrical amulet cases of modern Indian pattern, see T. H. Hendley, *Indian Jewellery*, Pls. 57, no. 353 and Pl. 96, no. 648. Other objects from the same hoard include 'Jewellery', nos. 94, 104; 'Finger-rings', no. 5; 'Silver-ware', no. 14; 'Copper and Bronze', nos. 211, 291, 310; 'Stone Objects', nos. 138–40, 148; 'Shell', no. 42; 'Glass', nos. 1, 4, 18, 19. See vol. 1, p. 188, no. 7. (Pl. 191, *q*.)

85, *a–d*. Four square amulets of gold, decorated on the face with swastika outlined in repoussé beading. Size 2·12 × 2·12 × 0·19 in. At the centre is a diamond-shaped depression, and at the four corners of the arms are heart-shaped depressions intended for inlays of stone or paste. The amulets are of sheet-gold on a core of lac or mastic. Attached to the back are four copper rings. First century A.D. The swastika, which was virtually unknown to Sumer, Akkad, Babylon and Assyria, was common in India from the earliest times. For other examples at Taxila, see 'Finger-rings', no. 42; 'Bone and Ivory Objects', no. 91; 'Pottery', no. 265. Sk. '29–1,241/6; Block D'; sq. 62·113'; stratum III. Cf. p. 187, no. 10 *supra*; *A.S.R.* (1929), p. 60, no. 6; and for other objects from the same hoard, see nos. 7, 8 *supra*. (Pl. 191, *v*.)

86. Gold fleur-de-lys pendant with hook at top. Height 0·56 in. Third to second century B.C. Bm. '19–227; sq. 15·16'; stratum I. Cf. p. 111 *supra*.

87. Triangular pendant, made of double sheet of gold with small rim at apex and row of three beads at base. Height 0·56 in. Fourth to third century B.C. Bm. '20–1,198; sq. 27·27'; stratum III. Cf. p. 104 *supra*.

88, *a–c*. Three gold pendants in the form of pipal leaves. Length 0·56 in. Third to second century B.C. Bm. '12–20/9; stratum I. For other articles from the same hoard, see no. 71 above. Cf. *A.S.R.* (1912), p. 41, no. 5.

89. Bell pendant of gold, like those attached to the ear-pendants nos. 26–30 above (*q.v.*). Height 0·69 in. Beaded border round upper rim of bell. First century A.D. Sk. '28–1,917; Block G'; sq. 114·87'; stratum II. See vol. 1, p. 181.

90. Diamond-shaped pendant of thin sheet-gold, provided with ring at one corner for suspension. Length 0·5 in. Sk. '21–76; spoil earth.

91, *a*, *b*. Two hollow club-shaped pendants of gold. Length 1·06 in. First century A.D. Sk. '13–194/19; Block E; sq. 77·66'; stratum II. For the club motif, which was common in Greek and Graeco-Roman jewellery, cf. *B.M. Cat. of Jewellery*, nos. 1952, 2036–9, 2369, 2412–24, 2686, 2718, 3024. As a rule the club takes the form of a pendant, but sometimes is strung from end to end on a necklace. Cf. p. 159, no. 11 *supra*; *A.S.R.* (1912), p. 27, no. 19. For other objects from same hoard, see nos. 9, 10 *supra*. (Pl. 191, *l*.)

92, *a–d*. Four hollow club-shaped pendants similar to preceding. Length 0·87 and 1·12 in. First century A.D. Sk. '29–1,241/14; Block D'; sq. 62·113'; stratum III. Cf. p. 187, no. 11 *supra*; *A.S.R.* (1929), p. 60, no. 13, and for other objects from same hoard, see nos. 7, 8 *supra*. (Pl. 191, *m*.)

93. Globular pendant of gold with ringed projection for suspension. Diam. 0·5 in. First century A.D. Sk. '29–1,241/31. From same hoard as preceding. Cf. p. 187, no. 12 *supra*; *A.S.R.* (1929), p. 61, no. 33.

94, *a–c*. Three globular pendants of gold similar to preceding. Diam. 0·25–0·5 in. First century A.D. Sk. '19–933/5; Block D'; sq. 59·114'. Cf. p. 188, no. 8 *supra*, and for other objects from same hoard, see no. 84 *supra*.

95, *a–d*. Four gold coin pendants, with square tubular attachment at top. Height 1 in. One of the tubes is set with a carbuncle in beaded circlet; the others are plain. The coins are

of the later Kushān, King Sīta(?) type. Three are identical, viz.: Obv. 'King nimbate standing to left at altar'. In r. hand, trident with streamers; in l. hand, staff; Brāhmī legends vertically arranged: r. Shāka(?); under arm, Sīta(?) l. *bha*. Rev. 'Enthroned goddess' (? Ardochsho), holding cornucopia in l. hand. Marginal legend defaced. Cf. V. Smith, *Cat. of Coins in the Indian Museum*, vol. 1, pt. 1, p. 89, nos. 6–10. In the fourth coin, the legend in r. field appears to read *tasu*. Jn. '16–F61–3. Mon. cell no. 19, where nos. 201, 202 *infra* were also found See vol. 1, p. 385; *Jn. Mem.* p. 57, nos. 4–7 and Pl. xxix, *j–m*. (Pl. 191, *n*.)

CLASS V. *Brooches* (nos. 96–9)

96. Gold repoussé figure of winged Aphrodite or Psyche. Height 3·31 in. The goddess is standing on a lotus(?) pedestal, resting her left elbow on a pillar and her right hand on her hip. Her drapery falls across her thighs, leaving the rest of the body bare. She wears armlets, bracelets and a crossed breast-band. Her hair is gathered in a knot on the crown of her head, with curls falling in front over her ears. Behind her shoulders appear two wings, roughly depicted. The relief, which is of thin plate-gold, was probably fashioned with the help of a stone or metal matrix, and afterwards finished with punches and graving tools. The back was made in a separate piece and soldered to it. Attached to the latter are three small rings, two behind the wings and one behind the feet. The type appears to go back to an original of the Praxitelean School (*c.* 300 B.C.). For the pose, cf. Reinach, *Répertoire de la Statuaire gr. et rom.* II, p. 334, nos. 5, 6; p. 335, nos. 1, 2, 6; IV, p. 201, no. 4, etc.; VI, p. 80, no. 4. For the crossed breast-band, cf. Winter, *Die Antiken Terrakotten*, III, 2, p. 209, no. 7 *et passim*; Dennison, *A Gold Treasure from Egypt* (late Roman), p. 150, fig. 43. First century A.D. Sk. '29–1,507/2; Block D'; sq. 64·92'; stratum II. Cf. p. 186, Deposit A, no. 4, *supra*; *A.S.R.* (1929), p. 65, no. 51 and Pl. XVI, 3. For other objects from the same hoard, see no. 2 *supra*. (Pl. 191, *s*.)

97. Gold brooch with figure of winged Aphrodite or Psyche, similar to the preceding but of coarser workmanship, though the wings of the goddess are slightly more realistic. Height 2·5 in. First century A.D. Sk. '13–194A/1; Block E; sq. 77·65'; strata I–II. Cf. p. 160, no. 1 *supra*; *A.S.R.* (1912), p. 27, no. 1, Pl. XXII, *b*, 1. For other objects from the same hoard, see no. 60 *supra*. (Pl. 191, *t*.)

98. Gold brooch, with figures of Eros and Psyche in repoussé relief. Height 1·81 in. The figures are standing side by side caressing each other, Eros holding Psyche's breast with his right hand. The technique is the same as in no. 96, but the workmanship is superior. At the back are three small rings for attachment, two at the middle and one behind the feet. In the base are two small holes, one larger than the other, through which the core of lac or mastic was inserted. For figures of Eros and Psyche as lovers, cf. Collignon, *Monuments relatifs au mythe de Psyché*, pp. 369 ff.; Stephani, *Comptes Rendus* (1877), p. 160; Pottier et Reinach, *Nécropole de Myrina*, p. 411; Winter, *Die Antiken Terrakotten*, II, 224–32. For a group on a bronze hydria in the British Museum, see Walters in *Arch. Zeit.* (1884), Pl. 1, and pp. 1 ff., and Furtwängler, *Coll. Sabouroff*, II; Pl. 135. Also Dar. et Sag. IV, 748 and nn. 13–21. First century A.D. Sk. '29–1,241/1; Block D'; sq. 62·113'; stratum III. Cf. p. 187, no. 13 *supra*; *A.S.R.* (1929), p. 59, 1 and Pl. XIX, 2; and for other objects from same hoard, see nos. 7, 8 *supra*. (Pl. 191, *u*.)

99. Circular gold medallion brooch, decorated on face with winged Eros reclining(?) on flowing draperies. Diam. 1·12 in. The brooch is made of two pieces of sheet-metal joined at the edges. The relief, which is of rough workmanship, appears to have been fashioned in a matrix like nos. 96–8. First century A.D. Sk. '13–194, *a*/2; Block E; sq. 77·65'; strata I–II. Cf. p. 160, no. 2 *supra*; *A.S.R.* (1912), p. 28, no. 2 and Pl. XXII, *b*. For other objects from the same hoard, see no. 60 *supra*. (Pl. 191, *w*.)

CLASS VI. *Hair-pins* (nos. 100, 101)

100. Gold hair-pin with flat 'wheel' head decorated on both sides with cinquefoil rosette inlaid with white orthoclase felspar and encircled by double beading. Length 4·37 in. First century A.D. Sk. '29–1,241/20; Block D'; sq. 62·113'; stratum III. Cf. p. 187, no. 14 *supra*; *A.S.R.* (1929), p. 61, no. 19 and Pl. XIX, 14; and for other objects from same hoard, see nos. 7, 8 *supra*. (Pl. 191, *z*.)

101. Hair-pin of silver with gold head. Length 5·65 in. The head consists of a crescent resting on a small cube and surmounted by a *triratna* device. Four pearl drops on gold wire hang from the crescent and two from the *triratna*. Three circlets of gold with double rows of beading support each of the three component parts. A particular interest attaches to this hair-pin because of the combination of Indian and Greek motifs, the crescent (Gr. μήνισκος) being characteristically Greek (e.g. *B.M. Cat. of Jewellery*, nos. 2360–5, 2449–62, etc.) and the *triratna* just as characteristically Indian. A similar pin but without the crescent is figured on the west gateway of Sāñchī fastening the knotted thong over the scabbard of a broad sword (Marshall and Foucher, *The Monuments of Sāñchī*, Pl. LXVI, *a*). The *triratna*, an age-old device in India, was specially adopted by the Buddhists as a symbol of the Buddhist Trinity, and is figured in great profusion on the early Buddhist monuments at Sāñchī, Bharhat and elsewhere. It also occurs as a monogram on the coins of contemporary Indo-Parthian and Kushān kings. First century A.D. Sk. '26–4,081/1; Block D; sq. 58·47'; stratum III. Cf. p. 156, no. 10 *supra*; *A.S.R.* (1926), p. 113, no. 9 and Pl. XXVI, 11. For other objects from the same hoard, see nos. 3, 4 *supra*. (Pl. 191, *z*.)

CLASS VII. *Bangles and bracelets* (nos. 102–43)

The gold and silver specimens of bangles, armlets and bracelets comprise five types, viz.:

Type *a*. Solid bangles of heavy wire with open knobbed ends. Cf. 'Copper and Bronze', ch. 28, Class I, type *a*.

Type *b*. Solid bangles of wire with spirally twisted ends. Cf. 'Copper and Bronze', Class I, type *b*, no. 6.

Type *c*. Hollow bangles of thin metal with expanded ends. Not found in copper or bronze.

Type *d*. Solid or hollow bangles with ends terminating in lion-heads.

Type *e*. Openwork bracelets with square 'gate' clasps adorned with jewels.

Of these, types *d* and *e*, the most ornamental, are copied from Greek prototypes. At Taxila, the former dates back to the third or early second century B.C.; the latter to the first century A.D.

For a copper bracelet covered with gold-leaf (third to second century B.C.), cf. 'Copper and Bronze', Class I, no. 7.

Type *a*:

102, 103. Two solid bangles of heavy silver wire with cubical knobbed ends. Diam. 3·37 in. Cf. 'Copper and Bronze', nos. 1, 2. A similar bangle, figured at the top of the illustration, was also found in the jeweller's hoard in Block D' (p. 187, no. 33). First century A.D. Sk. '24–683/7; Block B; sq. 31·47'; stratum II. Cf. p. 147, no. 7 *supra*; *A.S.R.* (1924), p. 49, no. 7. For details of other objects from the same hoard, see nos. 13, 14 *supra*. (Pl. 195, *a*.)

Type *b*:

104. Solid bangle of gold wire, with ends twisted spirally round opposite sides to permit of the bangle being expanded. Diam. 2·25 in. First century A.D. Sk. '19–933/2; Block D'; sq. 59·114'; stratum II. Cf. 'Copper and Bronze', no. 6, and for Roman examples, *B.M. Cat. of Jewellery*, nos. 2803, 2809. Cf. p. 188, no. 6 *supra*, and for other objects from same hoard, see no. 84 *supra*.

105–15. Eleven gold bangles similar to preceding. Diam. 1·5–2·75 in. First century A.D. Sk. '29–1,241/13; Block D'; sq. 62·113'; stratum III. Cf. p. 187, no. 15 *supra*; *A.S.R.* (1929), p. 60, no. 12, and for other objects from same hoard, see nos. 7, 8 *supra*. (Pl. 195, *b*.)

Type *c*:

116–19. Four hollow gold bangles with expanded trumpet-shaped ends. Diam. 3·12 in. They are made of thin sheet-gold on a core of lac or mastic, and the ends were closed with a separate disk of gold. The same shape occurs in Mycenaean and Archaic Greece (cf. *B.M. Cat. of Jewellery*, nos. 801, 1248) but does not appear to have survived into later times. It may have been evolved independently in India. Sk. '13–194/3, 4; Block E; sq. 77·66'; stratum II. Cf. p. 159, no. 12 *supra*; *A.S.R.* (1912), p. 26, nos. 3, 4 and Pl. XXI, 1–4. For other objects from the same hoard, see nos. 9, 10 *supra*. (Pl. 195, *c*.)

120–121. Two gold bangles similar to preceding. Diam. 3·62 and 3·75 in. First century A.D. Sk. '29–1,241/4; Block D'; sq. 62·113'; stratum III. Cf. p. 187, no. 16 *supra*; *A.S.R.* (1929), p. 59, no. 4. For other objects from the same hoard, see nos. 7, 8 *supra*. (Pl. 195, *f*.)

122–4. Three gold bangles similar to preceding, but one of them is provided with a tenon and socket-hinge in the middle of the back. Diam. 3 in. First century A.D. Sk. '24–683/4; sq. 31·47'; stratum II. Cf. p. 147, no. 4 *supra*; *A.S.R.* (1924), p. 49, no. 4. For other objects from same hoard, see nos. 13, 14 *supra*.

125–32. Eight gold bangles of similar shape to preceding. Diam. 2·75–3·12 in. The trumpet-ends were joined together, and a section cut out from the back of the bangle was provided with hinge and fastener, so as to act as a movable clasp. First century A.D. Sk. '26–4,081/11; Block D; sq. 58·47'; stratum III. Cf. p. 156, no. 11 *supra*; *A.S.R.* (1926), p. 114, no. 13. For other objects from the same hoard, see nos. 3, 4 *supra*. (Pl. 195, *d*, *g*.)

Type *d*:

133–6. Four gold bangles or armlets with ends terminating in lions' heads. Diam. 4·2–4·65 in. They are made of thin beaten gold on a core of shellac or mastic. The lion heads, which are made in separate pieces, are decorated with wavy lines in imitation of manes, and finished at the back with a double-plaited border. This type of bangle was familiar in Eastern Greece as far back as the archaic period and survived down to Roman times. For examples, see *B.M. Cat. of Jewellery*, nos. 1204–7, 1985, 1989, 1991, 1992, 2763. The Taxila specimens are probably of the early second century B.C. Bm. '21–858; sq. 41·138'; stratum I. Cf. p. 111 *supra*; *A.S.R.* (1920), Pl. XVII, 27 and no. 166 *infra*. (Pl. 195, *i*.)

Type *e*:

137, 138. Pair of gold bracelets with square gate clasp encrusted with gems. Diam. 2·5 in.; width 1·62 in. The hoop or body of the bracelet is of fretted sheet-gold with a running acanthus pattern relieved with comma-shaped leaves, circular box-settings and knots, the whole enclosed in plaited-chain borders. The leaves are inlaid with white orthoclase felspar with convex surface, and the circular settings with amber. The design on the gate clasps takes the form of five circular settings inlaid with amber and crescent and circle devices in the corners inlaid with white orthoclase felspar. The hinge and fastening of the clasp consist of short sections of beaded tubing held together by a pin. The clasp is strengthened by cross-strips of gold soldered to its back. First century A.D. Sk. '29–1,507; Block D'; sq. 64·92'; stratum II. Cf. p. 186, Deposit A, no. 5 *supra*; *A.S.R.* (1929), p. 64, no. 49 and Pl. XVIII, 61.

This type of clasped bracelet goes back to the fourth or fifth century B.C. in the Near East, but appears to have been Scytho-Greek rather than Greek. For a fine specimen of the fourth century B.C., found in a royal tomb at Koul-Oba in the Crimea and closely resembling this bracelet from Taxila, cf. Dar. et Sag. *s.v.* 'Armilla', I, p. 436, fig. 529, and *Antiquités du Bosphore cimmérien* (Russian Government Publication, St Petersburg, 1854, Paris, 1892), Pl. XIV, 4. For other objects from the same hoard, see no. 2 *supra*. (Pl. 196, *a*.)

139. Gold bracelet similar to preceding. Diam. 2·4 in.; width 1·75 in. The hoop is decorated with leaf design, knots and oval box-settings, inlaid with carbuncles—the whole surrounded by a beaded border. There were traces of turquoise or turquoise paste in the leaf cloisons when first discovered. The design of the square gate-clasp is the same as in nos. 137 and 138, but the gems in the circular settings are different. The gems from the corner crescent and circle cloisons are missing. The hinge and fastening of the clasp are of plain instead of beaded tubing. First century A.D. Sk. '17–A 1, *a*. From field near Sirkap. (Pl. 196, *b*.)

140, 141. Pair of gold bracelets of similar type to the preceding. Diam. 2·5 in.; width 1·87 in. The decoration on the hoop consists of four rows of S-shaped figures alternately reversed so as to form an ivy-leaf pattern. Enclosing it is a plaited-chain border. The clasp is solid and enriched with leaf-shaped cloisons once filled with gems or paste and with an oval box-setting in the centre. In one setting the inlay is rock-crystal *en cabochon*. In the other it is glass paste, now much decayed. The border is the same as that round the hoop. For the S-shaped fretted pattern, cf. *B.M. Cat. of Jewellery*, no. 2735 (Pl. LIX) of the first to second century from Egypt. The ivy pattern is common at all periods in Greek and Graeco-Roman jewellery. First century A.D. Sk. '29–2,193/1; Block G'; sq. 108·87'; stratum II. Cf. p. 180 *supra*; *A.S.R.* (1929), p. 67, no. 75 and Pl. XVIII, 5. For other objects from same hoard, see no. 25 *supra*. (Pl. 196, *c*, *e*.)

142, 143. Pair of gold bracelets of similar pattern to the preceding but narrower. Diam. 1·81 in. The design in the hoop consists of a double S repeat fretted from sheet-gold, enclosed in a beaded border. The leaf cloisons on the clasp are filled with orthoclase felspar; the gem from the central setting is missing. There is no gold backing to the clasp, as in nos. 140, 141. First century A.D. Sk. '29–1,241/5; Block D'; sq. 62·113'; stratum III. Cf. p. 187, no. 17 *supra*; *A.S.R.* (1929), p. 60, no. 5 and Pl. XVIII, 4. For other objects from same hoard, see nos. 7, 8 above. (Pl. 196, *d*.)

CLASS VIII. *Torques* (nos. 144–7)

The torque, which was as foreign to India as it was to Greece and Italy, was a characteristic ornament among the Scythic and Celtic peoples, and was worn as a mark of distinction by the Medes, Persians and Parthians, all of whom were of the same Iranian stock as the Scythians. (Cf. Dar. et Sag. *s.v.* 'Torques'; Wroth, *Cat. of the Coins of Parthia*, *passim*; and for deities offering this token, see ch. 38, p. 771 and n. 2.) The specimens found at Taxila were doubtless the property of people of Śaka or Parthian nationality.

144. Hollow gold torque of beaten sheet-gold on a core of lac, with trumpet-shaped ends in front. Diam. 5·75 in. It is composed of two semicircles united at the narrow ends by a tenon-and-socket hinge and provided with a push-fastener at the expanded ends, very much like the modern patent 'push' fastener. Sk. '29–1,362/1; Block D'; sq. 62·113'; stratum IV. From same hoard as no. 46 *supra* (*q.v.*). Cf. p. 188, no. 1 *supra*; *A.S.R.* (1929), p. 62, no. 43. (Pl. 195, *k*.)

145. Gold torque of similar design and make to the preceding. Diam. 5·75 in. First century A.D. Sk. '29–2,193/2; Block G'; sq. 108·87'; stratum II. Cf. p. 180 *supra*; *A.S.R.* (1929), p. 67, no. 76. For other objects from same hoard, see no. 25 *supra*.

146. Torque of beaten gold on core of lac (?). Diam. 5·87 in. It is made in one piece with expanded ends, the thickness of the tube increasing gradually from back to front. The ends are

stratum III. Cf. p. 187, no. 18 *supra*; *A.S.R.* (1929–30), p. 61, no. 21 and Pl. XIX, 15. For other objects from same hoard, see nos. 7, 8 above.

173. Similar to preceding but with petals inset with orthoclase felspar. From same hoard as preceding. *Ibid.* Pl. XIX, 8. (Pl. 191, *aa*.)

174, 175. Similar, but with six plain petals from which the paste is missing. From same hoard as preceding. Cf. p. 187, no. 19 *supra*.

176. Similar to nos. 170–2 but without circlet at centre. Inlay missing. Diam. 0·43 in. First century A.D. Sk. '22–223; Block 1'; sq. 11·93'; stratum II. See vol. I, p. 196.

177. Gold rosette of eight plain petals, one of which is missing. Diam. 1·12 in. First century A.D. Sk. '27–1,108; Block F; sq. 82·52'; stratum II. See vol. I, p. 166.

178. Similar to preceding with six petals. Diam. 0·75 in. Sk. '29–1,000; Block D'; sq. 66·113'; stratum IV. Cf. *A.S.R.* (1929), p. 65, no. 59. Although found in stratum IV, this rosette may be of Parthian date. Cf. pp. 134, 191 and no. 46 *supra*.

179–98. Twenty rosettes of gold with six petals. Diam. 0·5 in. Each rosette is provided with four small hoops at the back for attachment to a garment. First century A.D. Sk. '26–4,081/2; sq. 58·47'; Block D; stratum III. Cf. p. 156, no. 15 *supra*; *A.S.R.* (1926), p. 113, no. 3 and Pl. XXVI, 5. For other objects from the same hoard, see nos. 3, 4 *supra*. (Pl. 191, *r*.)

199, 200. Two bowl-shaped buttons or possibly *phulas* (head ornaments) of gold, with ring on concave side for attachment. Diam. 0·69 in. Bm. '24–556, *b*; sq. 32·26'; stratum III. Cf. *A.S.R.* (1924), p. 48, l. 23. For other objects from same hoard, see no. 52 *supra*.

201, 202. Two cup-shaped ornaments of gold with hoops on concave side for attachment. Crude floral design outside. Diam. 0·37 in. Fifth century A.D. Jn. '16–F58; cell 19. From same cell as no. 95, *a–d* (*q.v.*). Cf. *Jn. Mem.* Pl. XXIX, 2, 3.

203. Hollow bead of gold, hemispherical and gadrooned. Diam. 0·69 in. Sk. '29–1,923; Block B'; sq. 36·95'; stratum IV. See vol. I, p. 134.

204–10. Seven circular disks of thin gold, with triangular piece cut in centre and turned outward. Diam. 0·73 in. Used for closing the trumpet-ends of gold bangles made of thin sheet-metal on a core of shellac. Third to second century B.C. Bm. '12–20/15; stratum I. For other articles from the same hoard, see no. 71 and p. 111 *supra*.

211. Plain oval locket(?) of gold; gem missing. Length 1 in. First century A.D. Sk. '13–194/17; Block E; sq. 77·66'; stratum II. Cf. p. 159, no. 13 *supra*; *A.S.R.* (1912), p. 27, no. 17. For other objects from same hoard, see nos. 9, 10 *supra*.

212, 213. Two box-settings of gold, one diamond-shaped, one oval; each with two ribbed hoops at back for attachment. Length 0·5 in. The gem from one is missing; the other is inlaid with a garnet *en cabochon*. First century A.D. Sk. '13–194/18; Block E; sq. 77·66'; stratum II. Cf. p. 159, no. 14 *supra*; *A.S.R.* (1912), p. 27, no. 18 and Pl. XXIII, *a*, 9. For other objects from same hoard, see nos. 9, 10 *supra*. (Pl. 191, *bb*.)

214. Sk. '17–1, *a*. From spoil earth. First century A.D. Rectangular gold bar, weight 6694·5 gr.; size 3 × 1 × 0·5 in.

215. Sk. '29–1; Block 2B'; sq. 32·86'; stratum II. One solid gold bar, weight 2258 gr.; size 3 × 0·5 × 0·3 in. Cf. p. 194 *supra*.

216. Sk. '28–2,679; Block K (palace); sq. 157·43'; stratum II. One hemispherical lump of pure gold cast in crucible; weight 2192 gr.; diam. 1·25 in. *A.S.R.* (1928–9), p. 60 (*f*) and Pl. XXI, 11. For other objects from the same hoard, see no. 29 and pp. 174–5 *supra*.

217. Sk. '28–2,679. From same hoard as preceding. Part of hemispherical lump of gold cast in crucible; weight 1110 gr.; diam. 1·12 in. *Ibid.* p. 60 (*h*) and Pl. XXI, 6.

218. Sk. '28–2,679. From same hoard as preceding. Oval-shaped flat piece of gold and silver alloy; weight 91 gr.; length 0·5 in. *Ibid.* p. 60 (*i*) and Pl. XXI, 7.

219. Sk. '28–2,679. From same hoard as preceding. Hemispherical lump of silver cast in crucible; weight 1724·5 gr.; diam. 1·5 in. *Ibid.* p. 60 (*k*) and Pl. XXI, 9.

Chapter 31. FINGER-RINGS AND GEMS

Finger-rings in ancient India

LITTLE is yet known about the use or character of finger-rings in ancient India. A few copper or bronze specimens of a simple form have been unearthed on the Chalcolithic sites of Mohenjo-daro and Harappā,[1] and—two or three thousand years later—among the sculptures of the Early School both male and female figures may be seen wearing a multiplicity of rings on their fingers and thumbs.[2] It is clear, therefore, that the practice of wearing finger-rings goes back to a remote antiquity in India, as it does in the Mediterranean coasts and Egypt, and it is also clear that the practice was a popular one in Hindustān and Central India during the centuries immediately preceding the Christian era. Unfortunately, no actual specimens of Indian finger-rings of this period have survived, and the representations of them on the hands of the stone statues are necessarily too rough and sketchy for us to make out the character of their design, let alone the materials of which they were composed. Nor does the collection of rings from Taxila help us to fill this gap in our knowledge, since, with few exceptions, they are of a distinctively Graeco-Roman pattern. On the other hand, it adds to our understanding of local culture in the Panjāb to find that, even in regard to an article of jewellery which had had so long a history in India itself the fashions prevailing at Taxila were derived almost exclusively from the Graeco-Roman world, thus more than confirming the evidence furnished by countless other articles of ornament and daily use as to the strength of Western influence at that time.

Rings from Bhiṛ Mound

The earliest finger-rings in the collection are those from the Bhiṛ Mound, which date from the fourth, third or early second century B.C. (See Stratigraphical Chart, p. 644.) One of these (no. 18), with a shield-like bezel, is of silver, nine of copper (nos. 19, 25–30, 34 and 41), one of iron (no. 57), one of lead (no. 59), and one of shell (no. 66). No gold finger-rings of any kind have been found in the Bhiṛ Mound and no ring of any metal inset with a stone or paste. Of the copper rings, no. 19 is a plain wire circlet with coiled ends, without a bezel; nos. 25–30 and 34 have plain bezels—six almond-shaped and flat, the seventh round and raised; no. 41 has an almond-shaped flat bezel engraved with the crude figure of an elephant. The iron ring no. 57, which has a large oval bezel extending from side to side of the hoop, is of a shape that was to become commoner two centuries later. The lead ring no. 59 has a similar bezel, but the hoop forms little more than half a circle.

Rings from Sirkap and other sites

Of later finger-rings, one copper specimen (no. 37) with flat oval bezel inset with

[1] Cf. *M.I.C.* p. 35, and Pl. CXLVIII, *a*.
[2] E.g. Cunningham, *Bharhut*, Pls. XXII, 1; XXIII, 1; XXIV, 4.

glass paste, comes from the Greek level in Sirkap and may be referable to the second century B.C.; one (no. 7) is from stratum IV; ten (nos. 2–4, 9, 17, 35, 36, 43, 46, 68) from stratum III; and twenty-eight from stratum II. Most of these rings were buried at the time of the Kushān invasion in the third quarter of the first century A.D. and, with the exception of nos. 14 and 16, which were evidently heirlooms, are no doubt referable to that century. That one of them was found in stratum IV, others in stratum III, and others in stratum II means no more than that they were buried at varying depths beneath the floors of the Parthian houses. Of the remaining specimens, four come from the surface-level in Sirkap, two from Sirsukh, eight from the Dharmarājikā and six from other Buddhist settlements destroyed by the White Huns in the fifth century A.D. The finger-rings from Sirkap, which constitute the most interesting part of the collection, comprise seventeen specimens of gold, twenty-three of copper, one of onyx and two of glass, as well as thirteen engraved gems intended to be set in rings.

Six main types

The types are not numerous. They fall into the following categories: (*a*) plain wire circlets with coiled ends; (*b*) ornamental hoops without bezels; (*c*) hoops with plain flat or raised bezels of the same metal, the bezels being oval, almond-shaped or round in form; (*d*) similar to type *b*, but with engraved metal bezels; (*e*) similar to type *c*, but with plain or engraved stones or paste inset in bezels; (*f*) rings of types (*c*)–(*e*) with inscriptions. Besides these main classes, there is one gold ring, no. 12, which is of unique pattern, the hoop, which is composed of an openwork vine scroll, being nearly an inch wide, and the bezel of pyramidal shape, 1·7 in. long. Two others that deserve special notice are the gold ring no. 3, with a pair of almond-shaped bezels side by side and hoop ornamented in relief with apotropaic animal and other devices, and the copper ring no. 24, adorned with a series of Buddhist or Jaina symbols in relief round the hoop. The most favoured form of hoop among all these rings is flat within and rounded without, narrow at the bottom and expanding upwards to the bezel. It is a shape which came prominently into fashion in Greece during Hellenistic times (third to second century B.C.) and continued throughout the Graeco-Roman period. (Cf. *B.M. Cat. of Finger-rings*, p. xlii, types XXIII–XXV.)

Exceptional patterns

Commonest form of hoop

Date of rings from Buddhist sites

Of the rings from the Dharmarājikā and other monastic sites, no. 40—a copper ring with bezel composed of five circlet cloisons—is probably to be assigned to the fifth century A.D.; and to the same date also belong the large inscribed copper ring no. 56 and the shell rings nos. 62–5.

Fabric of gold rings

Of the seventeen gold rings, seven only are of solid metal (nos. 1–3, 10, 12, 14, 16); the remainder are hollow-wrought of thin sheet-gold and filled with some substance such as lac, mastic or sulphur,[1] which in some cases has perished. Similar rings of gold with hollow cores were made by the Greeks and Romans,[2]

[1] Cf. Artemidorus, *Oneirocritica*, II, 5. οἱ γὰρ κενοὶ θεῖον ἔνδον ἔχοντες δόλους καὶ ἐνέδρας σημαίνουσι κ.τ.λ.

[2] Hence the commonly recurring δακτύλιος κατεαγώς of the Greek temple inventories. *B.M. Cat. of Finger-rings*, p. xxxi, n. 2.

and there can be no doubt that it was from them that the technique was copied, along with the shapes and most other features.[1]

Rings of silver, copper, bronze, iron and lead

Of silver there is no specimen from Sirkap or any of the later monastic sites, and only one from the Bhiṛ Mound (no. 18), which is of thin metal throughout. Copper and bronze, being cheaper metals, were worn mainly by the poorer classes, and among the Buddhists it was a rule that monks should wear seal-rings made of the baser materials, i.e. copper, brass, bell-metal, ivory, horn, etc.[2] It is possible, however, that some of the copper and bronze rings in this collection were once plated with gold, which has since worn off, like the copper bangle, no. 7. The gilding or gold-plating of bronze rings became common in Greece in the fourth century B.C. and from then onwards continued to be practised until Roman times.[3] The same may also have been the case with the iron rings nos. 57 and 58, for we know that in Greece iron rings were not infrequently plated with both gold and silver.[4] On the other hand, plain rings of iron were worn by the Spartans as well as by the Romans (even by those of high distinction) down to late Republican times; and we hear of Seleucus I wearing a ring of iron with an anchor engraved on the bezel. Under the Roman Empire, however, the iron finger-ring became the symbol of slavery, and hence the practice arose of slaves or persons not entitled to wear gold rings plating their iron ones with the precious metal.[5] Lead finger-rings appear to have been rare in the Graeco-Roman world, and there is no mention of them at all in classical literature, but there are some seventy specimens in the British Museum from a tomb of the early fifth century B.C. at Beneventum, as well as a few from other sites in Italy, Sicily and Greece, ranging in date from the fifth to third century B.C., and one of the latter (no. 1559 from Tanagra) still bears traces of gilding.[6]

Rings of stone, glass and shell

Specimens of jasper and rock-crystal finger-rings have been found in Greece dating back to the Mycenaean period, but most of the chalcedony and onyx rings appear to be referable to the Roman epoch.[7] The onyx ring no. 60 in the Taxila collection is certainly of the first century A.D., and no. 61, of the same material, is probably contemporary. To the same century also belong two of the three glass rings (nos. 67–8) which are furnished with bezels. The other, no. 69, which may or

[1] It was perhaps such make-believe articles that the author of the Han Annals had in mind when he wrote that the jewellery of Roman Syria consisted mostly of sham curiosities. Hirth, *China and the Roman Orient*, ch. 88.

[2] Cf. *J.A.S.B.* IV (1835), p. 625. The device on a monk's seal, according to the Dulva, was to be a wheel supported by two deer (symbol of the First Sermon) and, below it, the name of the founder of the Vihāra. Dulva X, 11, 12. *As. Res.* XIX, 1886.

[3] *B.M. Cat.* p. xxxiv.

[4] E.g. δακτύλιοι ὑπόχρυσοι σιδηροῖ· δακτύλιοι σιδηροῖ ὑπάργυροι, etc. in an inventory of a Delos temple of the third century B.C. Michel, *Recueil*, 833, ll. 80 f. Cf. *Inscr. Att.* II, 776, l. 26; Dittenberger, *Sylloge*, II, no. 588, l. 15. *B.M. Cat.* pp. xxxiv–v.

[5] Cf. Pliny, *N.H.* XXXIII, 21, 23, and *B.M. Cat.* pp. xxxiv–v.

[6] Cf. *B.M. Cat.* nos. 1483–1560. Dar. et Sag. *s.v.* 'Anulus'. For a charm of lead with thin sheet-gold covering, see 'Jewellery', no. 80 and Pl. 191, *o*.

[7] *B.M. Cat.* p. xxxvi, and nos. 1599–1618.

may not have had a bezel, is probably of later date. In the Graeco-Roman world glass rings, which were no doubt worn mainly by the poorer classes, first became common in the Hellenistic period and continued to be manufactured down to late Roman times. Shell does not appear to have been used in Greece or Italy for finger-rings. Of the five specimens of this material found at Taxila, no. 66, which has a flat oval bezel, is referable to about 200 B.C.; the other four, which are composed of carved hoops without bezels, date from the fifth century A.D.

Inset stones and pastes

As for the semi-precious stones and pastes in use among the jewellers at Taxila, the reader will find them discussed in detail in Beck's Memoir on *The Beads from Taxila*[1] and in the chapters on 'Stone Objects' (ch. 25, pp. 477–9), 'Jewellery' (ch. 30, p. 619) and 'Beads' (ch. 37, pp. 731–43). Here it will suffice to note that the gems found actually inset in these finger-rings or intended to be so inset are lapis-lazuli, malachite, rock-crystal, garnet, carnelian, jacinth and a grey-brown chert. The lapis-lazuli is found in a ring which dates probably from the first or second century B.C.; malachite, rock-crystal, garnet, carnelian and jacinth in rings of the first century A.D.; and the chert bezel dates from the fifth century A.D. Besides these semi-precious stones, glass paste occurs in copper rings of the second century B.C. and in a gold ring of the first century A.D. (nos. 36, 37 and 17).

Devices on bezels

The devices carved on the stone, glass and metal bezels are for the most part such as are commonly found on Greek and Roman rings. The best executed is the warrior with shield and spear on the lapis-lazuli bezel no. 16, which probably dates from the first or second century B.C. The rest of the engraved bezels are referable to the first century A.D. and are of poor workmanship. Some of the figures appear to be copied from coins current at that time in the Panjāb and North-West. Thus, no. 55 is virtually the same type as the Zeus standing with outstretched arm, which is figured on coins of Gondophares and several earlier rulers.[2]

The Heracles standing with club of nos. 17 and 44 appears in the same pose on coins of Hermaeus and Kujūla Kadphises,[3] as well as of other kings. The Nike holding a wreath and diadem on no. 47 and the humped Indian bull of no. 53 are features of many Indo-Greek, Śaka and Parthian issues.[4] The figures on some of the other finger-rings are more difficult to identify. Nos. 46, 49 and 52 look like Indian versions of Heracles in the guise of Śiva, holding the lion-skin in one hand and a bow or snake in the other. Other obviously Graeco-Roman motifs are the cornucopia, fluted vase and spear on no. 13, and the winged Pegasus on no. 43. On the other hand, the ***nandipada*** on the bezel of no. 14 and the swastika on no. 42 are just as obviously Indian.

Ornamentation of hoops

As a rule the hoops are plain or relieved only by some small and simple device, such as the pair of hearts supporting the bezel on either side in nos. 4 and 9, the clusters of granules in the same position in no. 16, or the beaded borders in no. 32.

[1] *Memoirs of the Arch. Survey of India*, no. 65.

[2] Cf. R.U.C. nos. 190, 191, 199.

[3] *Ibid.* nos. 222–34.

[4] *Ibid.* nos. 59–62, 95–101, 192–4, 201–8, 211–21, for Nike, and nos. 49, 70, 81–5, 148–57, 235–9, for the humped bull.

But in a few examples the decoration of the hoop is more elaborate. Thus in no. 23 the outer surface is rounded and gadrooned;[1] in no. 3 the devices on the hoop consist of a pair of small ladybirds(?), a scorpion, swastika and leaf pattern; in no. 11 of a scorpion-like creature with a head at each end in the form of a *nandipada*; in no. 24 of a series of nine symbols sacred to both the Buddhists and the Jainas. In these three examples there can be no doubt that the hoops, which are probably of traditional Indian rather than Greek design, have a talismanic value. In no. 10, on the other hand, the hoop of which is made up of rosettes and lozenges alternating, and in no. 12, where it is composed of a broad openwork vine-scroll, the design may be simply ornamental.

Inscriptions

It remains to add that the inscriptions on the finger-rings appear in every instance to give the name of the owner, usually in the genitive case.

Some general remarks on the finger-rings from the Bhiṛ Mound will be found in vol. I at pp. 103, 106–7, 111, and on the finger-rings from Sirkap at pp. 203–4. Other references are given in the individual entries of the catalogue below.

CLASS I. *Gold finger-rings* (nos. 1–17)

The plain circlet of gold, no. 1, dates from the fifth century A.D. The remaining sixteen rings were found in the Śaka-Parthian city on Sirkap in houses of the first century A.D., and the majority date no doubt from that century, but no. 16 and possibly no. 14 also, both of which show signs of much wear and which are more solid than the others, may date from the first century B.C., or even earlier.

Type *a*. *Circlet of plain gold wire.*

1. Plain hoop finger-ring of round gold wire. Diam. 0·81 in. Fifth century A.D. Jn. '16–E57; cell 19; *Jn. Mem.* Pl. XXIX, *l*. From same cell as 'Jewellery', nos. 95, 201–2. See vol. 1, p. 385.

Type *b*. *With bezel of same metal. Hoop plain or decorated in relief.*

2. Plain solid finger-ring of gold with flattened oval bezel. Hoop flat within, rounded without and expanding upwards to the bezel. Diam. 0·87 in. Sk. '29–1,241/17; Block D'; sq. 62·113'; stratum III. From same hoard as nos. 3, 9, 17 *infra*. Cf. p. 187, no. 20 *supra*. (Pl. 197, no. 2.)

3. Finger-ring of solid gold with projecting bezel in the form of a pair of almond-shaped bosses. Diam. 0·87 in. The hoop consists of a flat band of metal with beaded borders and figures in relief on the outer surface, namely, a pair of tortoise-like creatures (perhaps lady-birds) on either side of the bezel, followed by a scorpion, swastika and leaf design. The double almond-shaped bezel calls to mind the rings with two, three or four hoops joined together at the base, but with separate bezels side by side, and it seems probable that the double bezel here may have been evolved from that type of ring. Cf. *B.M. Cat. of Finger-rings*, Pl. XLV, type 7, and nos. 167–76. Sk. '29–1,241/18. From same hoard as nos. 2 (*q.v.*) 9 and 17. Cf. p. 187, no. 21 *supra*. (Pl. 197, no. 3.)

Type *c*. *With plain inset stones or paste.*

4. Finger-ring of thin sheet-gold. Diam. 1 in. Round raised bezel with projecting rim inlaid with flat malachite stone. Hoop flat within, convex without, and expanding upwards to bezel. On each shoulder a heart-shaped cloison enclosed within granule beading. The core of

[1] Cf. 'Copper and Bronze', no. 15 = Pl. 171, *l*.

the ring was probably filled with lac, mastic or sulphur. Sk. '22–433; Block 1'; sq. 11·93'; stratum III. Cf. p. 196 *supra*. (Pl. 197, no. 4.)

5. Finger-ring of thin sheet-gold. Hoop flat within, rounded without and expanding upwards. Square shoulders; flat oval bezel, inset with garnet *en cabochon*. Diam. 0·75 in. Sk. '19–933/3; Block D'; sq. 59·114'; stratum II. Cf. p. 188, Deposit E, no. 9 *supra*. (Pl. 197, no. 5.)

6. Similar, with slightly raised oval box-setting; gem missing. Diam. 0·81 in. First century A.D. Sk. '29–2,193/4; Block G'; sq. 108·87'; stratum II. Cf. p. 180, no. 4 *supra*. (Pl. 197, no. 6.)

7. Similar and of same date, with oval setting. Gem missing. Diam. 0·81 in. Sk. '29–1,362/2; sq. 62·113'; stratum IV. Cf. p. 188, no. 3 *supra*.

8. Similar to last, with slightly larger setting. Gem missing. Diam. 0·75 in. First century A.D. Sk. '28–2,679/*c*; Block K (palace); sq. 157·43'; stratum II. From same hoard as no. 10 *infra*. Cf. p. 174, no. 5 *supra*.

9. Kindred type but hoop composed of band of ribbed gold. Projecting oval bezel edged with granule beading and inset with convex crystal. On either side of the bezel is a heart-shaped cloison in beaded border, once set with amber. Diam. 0·62 in. Sk. '29–1,241/19. From same hoard as nos. 2 (*q.v.*), 3 and 17. Cf. p. 187, no. 22. (Pl. 197, no. 9.)

10. Finger-ring of gold composed of narrow band surmounted by five diamond-shaped cloisons alternating with five cinquefoil rosettes. The former are inlaid with white orthoclase felspar. The inlay in the rosettes, which was possibly turquoise, has perished. Diam. 0·75 in. First century A.D. Sk. '28–2,679/*d*. From same hoard as no. 8 *supra* (*q.v.*). Cf. p. 174, no. 6 *supra*. (Pl. 197, no. 10.)

11. Gold finger-ring with round projecting bezel enclosed in double-beaded circlets. Diam. 0·81 in. The hoop is composed of two plaited bands in beaded border, which are joined together at the base and branch out above on either side of the bezel. On the outside of the hoop is a double-headed scorpion-like creature, with one head supporting the bezel on either side. The heads resemble the familiar *nandipada* symbol, and the creature doubtless had an amuletic value. Sk. '26–4,136; Block 1; sq. 10·54'; stratum II. Cf. vol. I, p. 142 and *A.S.R.* (1926), Pl. XXVI, 2; p. 177, no. 1. (Pl. 197, no. 11.)

12, *a*, *b*. Pair of highly elaborate gold finger-rings. Diam. 0·8 in. The hoop is 0·9 in. wide and composed of an openwork vine scroll between fine reel borders. In the scroll are trefoil cloisons, once enriched with stones or paste. The bezel, which is pyramidal in shape, 1·7 in. long by 0·7 in. at the base, comprises three oval box-settings diminishing in size towards the top, and nine smaller cloisons, some heart-shaped, others leaf-shaped or circular. The topmost cloison is set with white orthoclase felspar; the gems from the others are missing. Sk. '33–667; Block D'; sq. 63·85'; stratum I. Cf. p. 191 *supra*. (Pl. 197, no. 12.)

Type *d*. *With engraved stones or paste inset in bezels.*

13. Gold finger-ring of thin metal on core of lac or mastic. Hoop flat within, rounded without and expanding upwards to bezel. Type similar to that of nos. 5–8 above. Oval carnelian setting engraved with cornucopia, fluted vase and spear, in the late Hellenistic style. Diam. 0·87 in. First century A.D. Sk. '13–194/9; Block E; sq. 77·66'; stratum II. From same hoard as nos. 14, 15, 16. Cf. p. 159, no. 15 *supra*; *A.S.R.* (1912), p. 27, no. 9, Pl. XXI, *b*, 7. (Pl. 197, no. 13.)

Type *e*. *With inscriptions.*

14. Solid gold finger-ring with flattened oval bezel engraved with Kharoshṭhī legend and *nandipada* symbol. Diam. 0·75 in. Hoop flat within, round without. Inscription reads: *Sadhalasa* = 'Of Sadhala'. (Cf. *Corpus Inscr. Ind.* vol. II, pt. I, p. 100 (1), and see below, 'Seals and Sealings', ch. 34, no. 22.) This finger-ring is much worn and it is possible that it may date from the first or second century B.C., though the hoard in which it was found belongs

STRATIGRAPHICAL CHART OF FINGER-RINGS

Class	Bhir Mound strata				Sirkap strata					Other sites[1]	Class
	IV 5th to 6th century B.C.	III 4th century B.C.	II Maurya	I Surface	VII ?Pre-Greek	VI–V Greek	IV Early Śaka	III–II Late Śaka-Parthian	I Surface		
I. Gold (nos. 1–17)	—	—	—	—	—	—	7	2–6, 8–11, 13–17	12, *a*, *b*	1 from Jn.	I
II. Silver (no. 18)	—	—	18	—	—	—	—	—	—	—	II
III. Copper and bronze (nos. 19–56)	—	25, 26	19, 27–30, 34, 41	—	—	37	—	20, 21, 31, 35, 36, 39, 42–51, 53, 55	24, 33	22, 23, 38, 52 from Dh. 40 from Bp. 56 from Bh.	III
IV. Iron (nos. 57, 58)	—	—	57	—	—	—	—	—	—	58 from Ghai	IV
V. Lead (no. 59)	—	—	—	59	—	—	—	—	—	—	V
VI. Stone (nos. 60, 61)	—	—	—	—	—	—	—	60	—	61 from Dh.	VI
VII. Shell (nos. 62–6)	—	—	66	—	—	—	—	—	—	62 from Pl. 63 from Ss. 64, 65 from Dh.	VII
VIII. Glass (nos. 67–9)	—	—	—	—	—	—	—	67, 68	—	69 from Dh.	VIII
IX. Engraved gems of stone or paste intended for finger-rings (nos. 70–5)	—	—	—	—	—	—	—	70, 71, *a*–*i*, 72, 73, *a*, *b*	(71, *a*–*i*)	74 from Ss. 75 from Jn.	IX

Note. Objects found in trial trenches or spoil earth are not included in the above Table.

[1] Bp. = Bādalpur; Bh. = Bhamāla; Dh. = Dharmarājikā; Jn. = Jauliāñ; Pl. = Pippala; Ss. = Sirsukh.

TABLE SHOWING DISTRIBUTION OF FINGER-RINGS IN SIRKAP

Block	Strata VI–V Greek	Stratum IV Early Śaka	Strata III–II Śaka-Parthian	Stratum I Surface
		East side of Main Street		
1	—	—	11, 36	—
A	—	—	31	—
B	—	—	—	—
C	—	—	43, 48, 55	—
D	—	—	45	—
E	—	—	13–16, 20, 71, *a–i*, 72, 73	(71, *a–i*)
F	—	—	—	—
G	—	—	44	33
H	—	—	—	—
I	—	—	—	—
J	—	—	—	—
K	—	—	8, 10, 42, 53, 67	—
I	—	—	—	—
		West side of Main Street		
1′	—	—	4	24
A′	—	—	—	—
B′	—	—	21, 47	—
C′	—	—	—	—
D′	37	7	2, 3, 5, 9, 17, 60	12, *a*, *b*
E′	—	—	39, 46, 68, 70	—
F′	—	—	49	—
G′	—	—	6, 51	—
H′	—	—	—	—
K′	—	—	—	—
Main Street	—	—	35	—
Eighth Street (east)	—	—	58	—

Note. Nos. 32 and 54, which were found in spoil earth, are not included in the above Table.

to the first century A.D. Sk. '13–194/8. From same hoard as preceding. Cf. p. 159, no. 16 *supra*; *A.S.R.* (1912), p. 27, no. 8; Pl. xxi, *b*, 6. (Pl. 197, no. 14.)

15. Gold finger-ring with raised disk-like bezel engraved with Kharoshṭhī and Brāhmī legends. Diam. 0·87 in. The gem from the centre is missing. The hoop is of rounded drawn-out wire with the ends coiled back round the base, like the copper examples, nos. 19 and 20. First century A.D. The inscription reads: *Mahayaśa putrasa Manavasa* = 'Of Mānava, the son of Mahāyaśa'. Cf. *C.I.I.* vol. II, pt. 1, p. 100 (2), Pl. xx, 2. Sk. '13–194/10. From same hoard as preceding. Cf. p. 160, no. 17 *supra*; *A.S.R.* (1912), p. 27, no. 10. (Pl. 197, no. 15.)

16. Solid gold finger-ring with flat rectangular bezel and clusters of four drops on shoulders. Diam. 1 in. The hoop is flat within, rounded without, and expanding upwards. The inlaid stone is lapis-lazuli engraved with the figure of a warrior armed with spear and shield, with an early Brāhmī inscription to his proper left. The style of the engraving is Hellenistic and it is likely that the ring, which is much worn, dates from the first or second century B.C. The inscription reads: *Samanavasa* = 'Of Samanava'. Sk. '13–194/11. From same hoard as preceding. Cf. p. 160, no. 18 *supra*; *A.S.R.* (1912), Pl. xxi, *b*, 9, p. 27, no. 11. (Pl. 197, no. 16.)

17. Gold finger-ring with flat oval bezel. Similar to nos. 5–8 above. Diam. 0·87 in. The inlaid gem is glass engraved with a standing figure of Herakles holding a club in right hand. To

the left of the figure is a Kharoshṭhī inscription, partly concealed by the gold rim. The reading is uncertain. First century A.D. For the figure of Heracles, cf. no. 44 below. Sk. '29–1,241/16; sq. 62·113'; stratum III. From same hoard as nos. 2 (*q.v.*), 3 and 9. Cf. p. 187, no. 23 (Pl. 197, no. 17.)

CLASS II. *Silver finger-ring* (no. 18)

18. Plain silver finger-ring with oval shield-like bezel. Diam. 0·75 in. The hoop is a thin band of metal and the bezel is curved to the shape of the finger. Third century B.C. Bm. '24–181; sq. 10·59'; stratum II. Cf. p. 106 *supra*. (Pl. 197, no. 18.)

CLASS III. *Copper and bronze finger-rings* (nos. 19–56)

Type *a*. *Of plain wire, partly coiled.* Made on the same principle as the copper bracelet no. 6, and gold bracelets nos. 104–5. Rings of this type date from the third century B.C. to the first century A.D.

19. Finger-ring of copper wire with coiled ends. Diam. 0·75 in. Third to second century B.C. Bm. '20–1,495; sq. 22·32'; stratum II. See pp. 106–7 *supra*. (Pl. 197, no. 19.)

20. Similar, but wire twisted round at ends in imitation of a bezel. Diam. 0·87 in. First century A.D. Sk. '14–1,990; Block E; sq. 76·55'; stratum II. Cf. p. 162, n. 1 *supra*; *A.S.R.* (1914), Pl. XXIV, 35. (Pl. 197, no. 20.)

21. Similar and of same date. Diam. 0·93 in. Sk. '17–283; Block B'; sq. 35·77'; stratum II. Cf. p. 194 *supra*.

Type *b*. *With hoop ornamented but without bezel.* Nos. 22 and 23 are probably of the early medieval period. No. 24 is of the first century A.D. The last-mentioned, as well as no. 23, are Indian rather than Hellenistic in form and decoration. The symbols on no. 24 are all typically Indian.

22. Copper finger-ring composed of thin band of metal with incised herring-bone pattern on outside. Diam. 0·75 in. Probably fifth century A.D. Dh. '15–1,058; mon. court A. Cf. pp. 278, 294 *supra*. (Pl. 197, no. 22.)

23. Copper finger-ring, flat within, rounded and gadrooned without. Diam. 1 in. Probably fifth century A.D. Dh. '16–66; mon. court A; 5 ft. below surface. Cf. pp. 278, 294 *supra*. (Pl. 197, no. 23.)

24. Copper finger-ring composed of metal band with beaded edges, flat on the inside and relieved on the outside with nine bosses bearing symbols in relief. On the largest boss, which takes the place of the bezel, is a 'shield' device, and on either side of it a *triratna*. The other devices include a pair of fishes, swastika, *vajra* and lotus rosette. The devices, which may be either Buddhist or Jaina, more probably the former, were all endowed with amuletic properties. Diam. 0·93 in. Sk. '20–746; Block 1'; sq. 13·79'; stratum I. The form and decoration of the ring suggest that it is an Indian pattern. For the *triratna*, cf. 'Beads', p. 747 and footnote; for the fishes, 'Copper and Bronze', no. 28, 'Jewellery', no. 78; for the swastika, *ibid.* no. 85. Cf. p. 196 *supra*. (Pl. 197, no. 24.)

Type *c*. *With plain bezels.* The bezels are usually almond-shaped but occasionally oval or round. Of the ten specimens listed below, seven come from the Bhir Mound and are referable to the fourth to second century B.C.; three come from Sirkap and belong to the first century A.D.

25. Copper finger-ring with flat almond-shaped bezel. Hoop flat within, angular without. Diam. 0·75 in. Bm. '20–708; sq. 31·29'; stratum III. Cf. p. 103 *supra*. (Pl. 197, no. 25.)

26. Similar. Diam. 0·75 in. Bm. '21–598; sq. 9·52'; stratum III. Cf. p. 103 *supra*. (Pl. 197, no. 26.)

27. Similar to preceding. Diam. 0·68 in. Bm. '21–378; sq. 12·60'; stratum II. Cf. pp. 106–7 *supra*.

28. Similar, but with two decorative bosses supporting the bezel. Diam. 0·62 in. Bm. '21–1,047; sq. 52·47'; stratum II. See vol. 1, *ibid*. (Pl. 197, no. 28.)

29. Similar to nos. 25–7. Diam. 0·68 in. Bm. '20–1,551; sq. 15·27'; stratum II. See vol. 1, *ibid*. (Pl. 197, no. 29.)

30. Similar to preceding. Diam. 0·87 in. Bm. '21–154; sq. 30·46'; stratum II. See vol. 1, *ibid*.

31. Similar to preceding, but of more flimsy make. Diam. 0·75 in. Sk. '20–943; Block A; sq. 19·55'; stratum II. Cf. p. 146 *supra*.

32. Of kindred type to above, but bezel smaller and beading on either side of hoop. Diam. 0·75 in. Sk. '13–566; spoil earth. (Pl. 198, no. 32.)

33. Copper finger-ring with large raised oval bezel. Hoop flat within, rounded without. Diam. 0·87 in. Sk. '26–2,215; Block G; sq. 109·52'; stratum I. Cf. p. 169 *supra*. (Pl. 198, no. 33.)

34. Similar to the last, but with raised round bezel. Diam. 0·75 in. Bm. '20–1,310; sq. 26·29'; stratum II. See p. 107 *supra*. (Pl. 198, no. 34.)

Type *d*. ***With stones or paste inlaid in bezel.*** No examples of this class of finger-ring have been found in the Bhiṛ Mound. The earliest is no. 37 from Sirkap, which dates from the second century B.C. Of the others, nos. 35, 36 and 39 are of the first century A.D., and no. 40 of the fifth century A.D.

35. Silver-bronze ring with almond-shaped bezel containing two depressions for gems. Hoop flat within, rounded without, and expanding upwards to bezel. Diam. 0·87 in. Sk. '14–629; sq. 56·71'; stratum III; Main Street. Cf. *A.S.R.* (1914), Pl. xxiv, 37. (Pl. 198, no. 35.)

36. Similar, but with oval bezel inlaid with glass paste which is now decayed. Diam. 0·87 in. Sk. '12–57; Block 1; stratum III. Cf. p. 142 *supra*. (Pl. 198, no. 36.)

37. Similar, with single depression inset with glass paste, which is fractured. Diam. 0·87 in. Sk. '19–1,698; Block D'; sq. 59·116'; stratum V. See p. 129 *supra*. (Pl. 198, no. 37.)

38. Bronze finger-ring with projecting oval bezel containing jacinth. Hoop composed of flat band of metal with protruding knob on each side of bezel. Diam. 0·75 in. Date uncertain. Dh. '22–35–E3; 4 ft. below surface. Cf. p. 294 *supra*. (Pl. 198, no. 38.)

39. Bronze finger-ring similar to no. 37. Stone of bezel missing. Diam. 0·87 in. First century A.D. Sk. '16–481; Block E'; sq. 74·180'; stratum II. Cf. p. 185 *supra*.

40. Copper finger-ring of round wire with raised bezel consisting of five cloisons arranged quincunxwise. Gems missing. Diam. 0·93 in. Probably fifth century A.D. Bādalpur '16–42; south of main stūpa. 5 ft. below surface. Cf. *B.M. Cat. of Finger-rings*, nos. 818 and 853. (Pl. 198, no. 40.)

Type *e*. ***With devices or figures engraved on metal bezel.*** No. 41, from the Bhiṛ Mound, dates from about 200 B.C. Nos. 42–51, from Sirkap, are of the first century A.D. No. 52 is of the early medieval period.

41. Fragment of copper finger-ring with almond-shaped bezel engraved with figure of elephant. Diam. 0·87 in. Bm. '19–427; sq. 15·13'; stratum II. See p. 107 *supra*, and *A.S.R.* (1919), Pl. xi, 1. (Pl. 198, no. 41 and Pl. 207, no. 16.)

42. Bronze finger-ring with flat almond-shaped bezel bearing swastika and two marks in roughly beaded border. Hoop flat within, angular without. Diam. 0·87 in. Sk. '14–382;

Block K (palace); sq. 161·43′; stratum II. Cf. p. 177 *supra*; *A.S.R.* (1914), Pl. xxiv. (Pl. 198, no. 42.)

43. Similar, with oval bezel engraved with a winged horse (Pegasus) intaglio. Diam. 0·75 in. Sk. '24–891; Block C; sq. 44·53′; stratum III. Cf. p. 149, no. 6 *supra*; *A.S.R.* (1924), Pl. xi, 6. (Pl. 198, no. 43 and Pl. 207, no. 27.)

44. Similar, with rough engraving of standing Heracles, holding club in right hand. Diam. 0·75 in. Sk. '13–170; Block G; sq. 96·55′; stratum II. Cf. p. 169 *supra*. (Pl. 198, no. 44.)

45. Similar, with almond-shaped bezel engraved with standing Nike to left. Diam. 0·75 in. Sk. '13–2,019; Block D; sq. 63·54′; stratum II. Cf. p. 155 *supra*. (Pl. 198, no. 45.)

46. Similar, with projecting oval bezel engraved with dancing female figure wearing loose drapery, which leaves the upper part of body and legs from knees downward bare. Hands hold uncertain objects. Diam. 0·68 in. Sk. '28–945; Block E′; sq. 70·101′; stratum III. Cf. p. 185 *supra*. (Pl. 198, no. 46 and Pl. 207, no. 33.)

47. Similar, but of copper. Oval bezel engraved with standing figure of Nike holding diadem in right hand. Diam. 0·75 in. Sk. '20–405; Block B′; sq. 36·89′; stratum II. Cf. p. 194 *supra*. (Pl. 198, no. 47.)

48. Similar to last, but with round bezel. Standing female figure with flowing draperies; damaged. Diam. 0·75 in. Sk. '24–872; Block C; sq. 43·45′; stratum II. Cf. p. 149, no. 6 *supra*. (Pl. 198, no. 48.)

49. Similar, but with raised bezel engraved with a standing male figure (? Śiva) dancing with arms akimbo. Much corroded. Diam. 0·62 in. Sk. '28–2,095; Block F′; sq. 94·87′; stratum II. Cf. p. 183 *supra*. (Pl. 198, no. 49.)

50. Bronze finger-ring with flat oval bezel engraved with miniature seated figure on throne. Diam. 0·62 in. Sk. '13–131; sq. 94·56′; Eighth Street; stratum II. (Pl. 198, no. 50.)

51. Circular bezel of a copper finger-ring engraved with standing draped figure holding snake or bow in right hand, and perhaps dancing. Hoop missing. Diam. 0·68 in. Sk. '29–2,340; Block G′; sq. 109·85′; stratum II. Cf. p. 181 *supra*. (Pl. 198, no. 51 and Pl. 207, no. 18.)

52. Copper finger-ring with raised oval bezel. Engraved on the bezel is a dancing figure (? Śiva) wearing *dhotī* and turban (?) and holding snake or bow in left hand (as seen in impression) and lion skin (?) in right. Diam. 0·87 in. Probably early medieval. Dh. '16–221; north-east of F; 3 ft. 6 in. below surface. Cf. p. 294 *supra*. (Pl. 198, no. 52.)

Type *f*. *With inscriptions engraved on bezels.*

53. Ring of copper wire with square raised bezel. Diam. 0·93 in. The hoop is flat within, rounded without. Engraved on the bezel is the figure of a humped bull, and an inscription in Kharoshṭhī, viz.: *Yavala(le?)trasa* = 'Of Yavalatra' (or 'Yavaletra'). Cf. *C.I.I.* ii, pt. i, p. 100, Pl. xx, 4. First century A.D. Sk '24–1,556; Block K (palace); sq. 154·63′; stratum II. See p. 177 *supra*; *A.S.R.* (1924), Pl. xi, 5. (Pl. 198, no. 53 and Pl. 207, no. 35.)

54. Copper finger-ring with flat oval bezel. Diam. 0·87 in. The hoop is flat within, rounded without, and expanding towards the bezel. On the bezel is engraved a maned lion asleep. To left is a swastika, and above and below, a Kharoshṭhī inscription: *Mahajhanaputrasa Jhanapriyasa* = 'Of Dhyānapriya, the son of Mahadhyāna'. Cf. *C.I.I.* ii, pt. i, p. 100 (3), and Pl. xx, 3. First century A.D. The engraving of the lion is well executed. Sk. '20–18; spoil earth; from south-west of palace. (Pl. 198, no. 54 and Pl. 207, no. 36.)

55. Similar to preceding, engraved with a standing male figure intaglio. Diam. 0·56 in. Inscription corroded: *Mahajha(na)putrasa...jhaṇasa* (?) = 'Of...dhyāna, the son of Mahadyāna'. Cf. *C.I.I.* ii, pt. i, p. 101 (6), Pl. xx, 5. Sk. '24–1,416; Block C; sq. 50·43′; stratum II. Cf. p. 149, no. 6 *supra*; *A.S.R.* (1924), Pl. xi, 3. (Pl. 198, no. 55 and Pl. 208, no. 46.)

56. Copper finger-ring with irregular hoop and large almond-shaped flat bezel. Length of bezel 1·57 in. On bezel, Gupta-Brāhmī inscription in single-line border which appears to

read: *Babhacha(ta)rṇa* = 'Bacharaṇa (?). Fifth century A.D. Bl. '30–293. For a gold coin of Bacharaṇa, see R.U.C. no. 270. Cf. p. 396 *supra*. (Pl. 198, no. 56 and Pl. 208, no. 58.)

CLASS IV. *Iron finger-rings* (nos. 57, 58)

Only two specimens of iron finger-rings have been found at Taxila. One dates from the third to second century B.C.; the other, which has a copper bezel, probably from the fifth century A.D.

57. Finger-ring of iron with flat oval bezel. Hoop rounded. Diam. 0·93 in. Bm. '19–746; sq. 13·11'; stratum II. Cf. p. 107 *supra*. (Pl. 198, no. 57.)

58. Finger-ring of iron with oval bezel covered with plate of copper. Diam. 0·87 in. Engraving on copper plate consists of two standing figures, but is indistinct. Ghai '25–7; west side; 2 ft. below surface. Cf. p. 354 *supra*. (Pl. 198, no. 58 and Pl. 208, no. 47.)

CLASS V. *Lead finger-ring* (no. 59)

There is only one finger-ring of lead in the collection. It comes from the Bhiṛ Mound and dates from about 200 B.C.

59. Finger-ring of lead with an almond-shaped bezel bearing figure of a tiger engraved intaglio. Diam. 0·93 in. Rough workmanship. Damaged. Bm. '19–116; sq. 12·28'; stratum I. Cf. p. 111 *supra* and *A.S.R.* (1919), Pl. XI, 4. (Pl. 198, no. 59 and Pl. 208, no. 42.)

CLASS VI. *Stone finger-rings* (nos. 60, 61)

Both of these finger-rings are of banded grey and brown onyx. No. 60 belongs to the first century A.D.; no. 61 is probably of the early medieval period.

60. Finger-ring of onyx, with projecting almond-shaped bezel. Diam. 1·12 in. Hoop flat within, rounded without. Sk. '19–1,003; Block D'; sq. 54·117'; stratum II. Cf. p. 191 *supra*. (Pl. 209, *g*.)

61. Finger-ring of onyx with plain elliptical bezel. Diam. 1·12 in. Partially damaged. Dh. '15–1,375; mon. court A; 10 ft. below surface. Cf. pp. 278, 294 *supra*. (Pl. 209, *f*.)

CLASS VII. *Shell finger-rings* (nos. 62–6)

The earliest of the shell finger-rings is no. 66, which dates from the third or early second century B.C., and is provided with an oval bezel. The other specimens are probably of the early medieval period.

62. Finger-ring of mother-of-pearl shell in form of *makara*. Diam. 1 in. Pl. '21–148; north of monastery; debris. Cf. p. 367 *supra*. (Pl. 209, *b*.)

63. Finger-ring of white shell with floral design on one face. Diam. 1·12 in. Ss. '15–41; Piṇḍorā; 5 ft. below surface. Cf. p. 220 *supra*. (Pl. 209, *c*.)

64. Similar, with gadrooned surface. Diam. 0·87 in. Dh. '17–1,050; spoil earth. Cf. p. 294 *supra*. (Pl. 209, *d*.)

65. Similar to preceding. Diam. 0·81 in. Dh. '16–343; mon. court A; 3 ft. below surface. Cf. pp. 278, 294 *supra*. (Pl. 209, *e*.)

66. Fragment of shell finger-ring with plain elliptical bezel. Diam. 0·81 in. Bm. '24–64; sq. 11·59'; stratum II. Cf. p. 109 *supra*.

CLASS VIII. *Glass finger-rings* (nos. 67–9)

Nos. 67 and 68 are of the first century A.D.; no. 69 of uncertain date, probably early medieval.

67. Fragment of glass finger-ring with flat almond-shaped bezel. Diam. 0·81 in. The glass is colourless and transparent. Sk. '14–193; Block K (palace); sq. 163·52'; stratum II. Cf. p. 177 *supra*.

68. Similar but of yellow glass. Diam. 0·75 in. Sk. '16–161; Block E'; sq. 68·76'; stratum III. Cf. p. 185 *supra*.

69. Fragment of finger-ring of dark blue and green opaque glass. Diam. 0·75 in. Dh. '16–254; mon. court A; 3 ft. below surface. Cf. pp. 278, 294 *supra*.

CLASS IX. *Engraved gems of stone and paste intended for finger-rings* (nos. 70–5)

Like the rings themselves which have stones or pastes inset in their bezels, these have been found only on the Sirkap and later sites. Fourteen date from the first century A.D. (Parthian); the remaining one from the fifth century.

70. Oval intaglio of malachite with figure of a winged Nike armed with spear and holding wreath and fillet in outstretched hand, as on contemporary Indo-Parthian coins. Longer axis 0·75 in. Sk. '22–566; Block E'; sq. 73·97'; stratum II. Cf. p. 185 *supra*. (Pl. 208, no. 53.)

71, *a–i*. Nine oval intaglios of jacinth cut *en cabochon* and hollowed at back. They are engraved with various full-length figures and busts. The best in point of execution is a figure of Athene (10, *f*) with helmet, spear and shield, and a snake to left. Another draped and helmeted figure (10, *a*) may also be the same goddess, but what looks like a shield may be the badly drawn wing of a Nike. On *h* and *i* is portrayed a draped goddess with cornucopia, the one on the former being helmeted. This may perhaps be the same goddess that is figured in nos. 1 and 2 of the 'Stone Sculptures', ch. 36. On *b* and *g* are figures of the winged Nike, the former with the palm of victory between her legs instead of in her hand. The three remaining intaglios are very roughly executed busts. Their head-dresses, however, are interesting. Fig. *d* wears a plumed helmet with a curious projection above the rim in front; the other two (*c* and *e*) wear turbans with the same projection in front. All the intaglios, except *a* and *f*, are of such rough workmanship that on grounds of style they might well be attributed to the third or fourth century A.D. That they date, however, from the first century is proved by the association in which they were found. Sk. '13–194; Block E; sq. 77·65'; strata I–II (in jar). Cf. p. 160, no. 4 *supra*; *A.S.R.* (1912), p. 28. From same hoard as nos. 72 and 73 *infra*. (Pl. 207, no. 10, *a–i*.)

72. Oval carnelian with flat face engraved with bust intaglio. From the same jar as the preceding. Cf. p. 160, no. 5.

73, *a*, *b*. Two oval intaglios of glass, the former (*a*) with flat face, banded in green, white and blue; the latter (*b*) of dull brown glass fashioned *en cabochon*. In both specimens the engraving is very worn and blurred. From same hoard as the preceding. Cf. p. 160, no. 6 *supra*.

74. Oval intaglio of carnelian with figure of Nike holding wreath and fillet in right hand, cornucopia in left. Face flat; back convex. Longer axis 0·5 in. Ss. '15–95; Piṇḍorā; 3 ft. 6 in. below surface. Cf. p. 220 *supra*. (Pl. 207, no. 9.)

75. Oval intaglio of chert, engraved with legend *Śrī Kuleśvaradasa* in Brāhmī characters of the fifth century A.D. Longer axis 0·75 in. Jn. '17–F586; cell 3; 8 ft. below surface. Cf. p. 385 *supra*. (Pl. 207, no. 15.)

Chapter 32. BONE AND IVORY OBJECTS

BONE AND IVORY were used at Taxila for the manufacture of a multitude of small objects of daily use: personal ornaments, toilet and domestic articles, gamesmen, toy furniture, and other miscellaneous things. All of these objects, however, were not manufactured at the same time. Some classes of them have been found only in the Bhir Mound; others only in Sirkap; while others are common to both sites. Those which come only from the Bhir Mound and are anterior to the middle of the second century B.C. are: ear-reels (nos. 5–7), gadrooned beads (nos. 8–11),[1] flesh-rubber (no. 60), spindle-whorls (nos. 82–4), draughtsmen or counters (nos. 85–91), and a doll (no. 121). Those which occur only in Sirkap and are referable to the period between the second century B.C. and the first century A.D. are: combs (nos. 18–23), ear-cleaners and toothpicks (nos. 39–42), handles of mirrors and fan (nos. 43–5, 47–52, 54–7), knife-handles (nos. 61–5), spoons (nos. 67–8), playing dice (nos. 92–8), knuckle-bones (no. 99), toy furniture (nos. 100–4) and cheek-bars for horses' bridles (nos. 115–17). Articles that are found on both sites comprise: bangles (nos. 1, 2), pendants and amulets (nos. 12–15, 17), hair-pins (nos. 24–34), antimony-rods (nos. 35–8), comb-handles (nos. 58, 59), writing stili (nos. 69–81)[2] and arrow-heads (nos. 105–14).

Many of these articles are traceable to a Greek or Western Asiatic origin. Such are the hair-combs, hair-pins with comb and cock heads, ear-cleaners and tooth-picks in combination, mirror-handles, writing stili, knuckle-bones (ἀστράγαλοι), the tooth amulet no. 17, the ivory ram's head no. 119, and the ivory pendant or handle with the two philosophers' heads no. 120. The two last, indeed, were in all probability imports from the West. The cheek-bars for horses' bridles (nos. 115–18) seem likely to have been introduced by the Parthians from Central Asia.

Some general remarks on bone and ivory objects from the Bhir Mound will be found in vol. I at pp. 102, 105 and 109, and on those from Sirkap at pp. 129, 135, 204–9. Other references are given in the individual entries of the catalogue below.

GROUP A. PERSONAL ORNAMENTS

Comprising bangles, ear-reels, gadrooned beads, pendants and amulets.

CLASS I. *Bangles* (nos. 1–4)

The materials commonly used for bangles were shell and copper for the cheaper sorts, silver and gold for the more expensive ones. Bone or ivory was occasionally used in place of shell, but only one or two specimens of these materials have been

[1] Gadrooned beads of faience, however, are common in the Śaka-Parthian period.

[2] Only one doubtful specimen (no. 69) comes from the Bhir Mound.

STRATIGRAPHICAL CHART OF BONE AND IVORY OBJECTS

Class	Bhir Mound strata: IV 5th to 6th century B.C.	Bhir Mound strata: III 4th century B.C.	Bhir Mound strata: II Maurya	Bhir Mound strata: I Surface	Sirkap strata: VII ? Pre-Greek	Sirkap strata: VI–V Greek	Sirkap strata: IV Early Śaka	Sirkap strata: III–II Late Śaka-Parthian	Sirkap strata: I Surface	Other sites[1]	Class
Group A. Personal Ornaments											
I. Bangles (nos. 1–4)	—	—	1	—	—	—	—	2–4	—	—	I
II. Ear-reels (nos. 5–7)	5, 6	—	—	—	—	—	—	—	—	—	II
III. Gadrooned or *āmalaka* beads (nos. 8–11)	8–10	—	11	—	—	—	—	—	—	—	III
IV. Pendants and amulets (nos. 12–17)	12	13, 14	—	—	—	—	—	17	—	16 from Hl.	IV
Group B. Articles of Dress and Toilet											
V. Combs (nos. 18–23)	—	—	—	—	—	—	18	19–21, 23	—	—	V
VI. Hair-pins (nos. 24–34)	24	25	—	—	—	26	27, 28	29–34	—	—	VI
VII. Antimony-rods, ear-cleaners and toothpicks (nos. 35–42)	—	35	36	—	—	—	37	38–42	—	—	VII
VIII. Handles of mirrors, fan, combs and other articles (nos. 43–59)	58	—	—	—	—	—	43, 59	44, 45, 48–52, 54–7	47	46 from Ml. 53 from Dh.	VIII
IX. Flesh-rubber (no. 60)	60	—	—	—	—	—	—	—	—	—	IX
Group C. Domestic Articles											
X. Handles of knives and other articles (nos. 61–6)	—	—	—	—	—	—	—	61–5	—	66 from Dh.	X
XI. Spoons (nos. 67, 68)	—	—	—	—	—	67	—	68	—	—	XI
XII. Writing stili and modelling implements (nos. 69–81)	—	69	70	—	—	—	81	71–80	—	—	XII
XIII. Spindle-whorls (nos. 82–4)	—	82	83, 84	—	—	—	—	—	—	—	XIII
Group D. Gamesmen and Playthings											
XIV. Draughtsmen or counters (nos. 85–91)	85, 86	87, 90, 91	88, 89	—	—	—	—	—	—	—	XIV
XV. Dice (nos. 92–8)	—	—	—	—	—	92	92, *a*, 93	94–8	—	—	XV
XVI. Knuckle-bones (no. 99)	—	—	—	—	—	—	99 (?)	—	—	—	XVI
XVII. Toy furniture or miniature chests (nos. 100–4)	—	—	—	—	—	—	—	100–4	—	—	XVII
Group E. Weapons and Horse-bridles											
XVIII. Arrow-heads (nos. 105–14)	105, 106, 111	108	109, 110, 112–14	—	—	—	—	107	—	—	XVIII
XIX. Cheek-bars of horses' bridles (nos. 115–18)	—	—	—	—	—	—	—	115–17	—	118 from Ml.	XIX
Group F. Miscellaneous											
XX. Miscellaneous (nos. 119–28)	122	—	119, 121, 125	—	—	120 (?)	123	124, 126, 128	—	—	XX

Note. The following objects found in spoil earth or debris are not included in the above list, viz.: no. 7 (ear-reel) from Bhir Mound; no. 15 (pendant), no. 22 (comb) and no. 127 (bone handle or terminal) from Sirkap.

TABLE SHOWING DISTRIBUTION OF BONE AND IVORY OBJECTS IN SIRKAP

Block	Strata VI–V Greek	Stratum IV Early Śaka	Strata III–II Śaka-Parthian	Stratum I Surface
		EAST SIDE OF MAIN STREET		
1	—	—	19, 56	—
A	—	—	4, 30, 103	—
B	—	—	100	—
C	—	—	31, 32, 34, 48, 61, 73, 76	—
D	—	120 (or Greek?)	38	—
E	—	—	33, 42, 77	—
F	—	18, 37, 123	29, 71	—
G	—	—	41, 49, 62, 97	—
H	—	—	55, 79, 80, 102	—
I	—	—	20, 72, 78, 98	—
J	—	—	75	—
K	—	—	51, 107, 117	—
L	—	—	—	—
		WEST SIDE OF MAIN STREET		
1′	—	—	17, 57, 68, 96, 104	—
A′	—	27, 81	21, 54, 63, 94	—
B′	26, 67	—	52	—
C′	92	92, *a*, 93	95, 116	—
D′	—	—	23, 40, 101, 126	47
E′	—	—	—	—
F′	—	43	45, 99, 115	—
G′	—	—	—	—
H′	—	—	—	—
K′	—	—	2, 39, 74	—
Main Street	—	—	3, 44, 64, 124	—
Sixth Street (west)	—	28	—	—
Seventh Street (west)	—	—	50	—

Note. Objects found in trial trenches and spoil earth are not included in the above Table.

found—one of bone from the Bhiṛ Mound (no. 1) and one of ivory from Sirkap (no. 2). Two other objects of bone and ivory (nos. 3, 4), which are described below, look at first sight like bangles, but could not have been used for this purpose as they show signs of wear only on the outer face and are rough inside.

1. Fragment of plain bone bangle. Diam. 1·62 in. Bm. '21–65; sq. 38·35′; stratum II. (Pl. 199, no. 1.)

2. Similar, of ivory, with incised cross-hatching between parallel lines on outer face. Length 1·5 in. Sk. '15–838; Block K′; sq. 160–106′; stratum II. Cf. p. 180 *supra*. (Pl. 199, no. 2.)

3. Ring of ivory. Diam. 2·5 in. This has the appearance of a bangle but seems rather to have been the base of a small pedestal like no. 56, though made in a separate piece. The inner face of the ring is rough; only the outer face is smooth. Sk. '14–1,177; Main Street; sq. 86·72′; stratum III. (Pl. 199, no. 3.)

4. Similar to preceding. Diam. 2·25 in. Sk. '16–85; Block A; sq. 18·66′; stratum II. Cf. p. 146 *supra*.

CLASS II. *Ear-reels* (nos. 5–7)

The term 'ear-reel' for this kind of ornament seems preferable to 'ear-plug', since the form they take is that of a reel and they were worn in the lobe, not in the

orifice of the ear. Some are solid; others pierced with a hole at the centre. They have been found only in the Bhiṛ Mound, in stratum IV. For other objects from the same early stratum, with which these ear-reels should have been included, see vol. I, p. 102.

5. Ear-reel of fine ivory, with one side convex and hole through centre, by which the reel may have been suspended on a cord. Diam. 0·93 in. Bm. '24–881; sq. 7·57′; stratum IV. (Pl. 199, no. 5.)

6. Similar, well turned on the lathe. One side slightly concave and decorated with incised concentric circles round a central projection. Diam. 1 in. Bm. '21–345; sq. 30·13′; stratum IV. (Pl. 199, no. 6.)

7. Similar, of bone, with hole through centre. It is of exceptionally large size. Diam. 1·31 in. Bm. '19–2,090; spoil earth. (Pl. 199, no. 7.)

CLASS III. *Gadrooned or* āmalaka *beads* (nos. 8–11)

This class of ornamental bead comes only from the Bhiṛ Mound and dates from the sixth to third centuries B.C. All the specimens are of bone and divided into eight gadroons. The Indian term *āmalaka* is adopted from the *āmalaka* or gadrooned sphere or wheel with which the *śikhara* of a Hindu temple is usually crowned and which, in its turn, derived its name from the *āmalaka* fruit. Beads of the same shape but made of faience are found in Sirkap. They seem to have been fashionable in the first century A.D.

8. *Āmalaka*-shaped bead of bone with eight gadroons and a hole through centre. Diam. 1 in. Bm. '19–1,978; sq. 10·38′; stratum IV. (Pl. 199, no. 8.)

9. Similar, with hole plugged up. Diam. 0·87 in. Bm. '21–175; sq. 8·51′; stratum IV. (Pl. 199, no. 9.)

10. Similar to no. 8. Diam. 1·12 in. Bm. '21–262; sq. 21–59′; stratum IV.

11. Similar to no. 9. Diam. 0·68 in. Bm. '24–180; sq. 9·60′; stratum II. (Pl. 199, no. 11.)

CLASS IV. *Pendants and amulets* (nos. 12–17)

Most of the articles in this class are dagger-shaped pendants of bone or ivory. Nos. 13 and 14 come from the Bhiṛ Mound and are referable to the fourth to third century B.C.; nos. 15 and 16, from Sirkap and Hathiāl, may belong to the century following, but their date is problematical. Another and earlier object of quasi-human form from the Bhiṛ Mound (no. 12, *c.* fifth century B.C.) was in all probability also a pendant, but might have been a child's toy. The little tooth or horn amulet no. 17, which is bound about the centre with a strip of copper, is akin to a tooth amulet of gold and lead from the Bhiṛ Mound. Cf. 'Gold and Silver Jewellery', ch. 30, no. 80, where references are given to the use of such amulets by the Greeks and Romans, the former of whom may conceivably have introduced them at Taxila.

12. Ivory object in quasi-human form. Height 2·5 in. Probably it was a pendant, but may have been a child's toy. Very similar figures are classed as toys by Flinders Petrie, *Objects of Daily Use*, Pl. LV, no. 600. It is provided with a small hole near the top, for suspension. Bm. '24–937; sq. 15·55′; stratum IV. (Pl. 199, no. 12.)

13. Dagger-shaped pendant of bone. Length 1·81 in. One side is decorated with six incised circlets, one on the handle and the rest on the blade. On the handle is a hole for suspension. Bm. '20–1,249; sq. 27·27'; stratum III. (Pl. 199, no. 13.)

14. Similar to preceding, but of ivory. Length 1·31 in. Decorated on one side of the blade with parallel lines and two circlets. Bm. '20–1,247; sq. 27·26'; stratum III. (Pl. 199, no. 14.)

15. Similar to preceding, with decoration of incised lines only on handle and blade. Length 1·87 in. The workmanship is noticeably rougher than in the Bhiṛ Mound specimens. Sk. '14–151; spoil earth. (Pl. 199, no. 15.)

16. Similar, with two small holes near base of blade and incised parallel lines on handle and blade. Length 2·62 in. Hl. '12–28; 1 ft. below surface. (Pl. 199, no. 16.)

17. Amulet in form of crude bucranium, consisting of a pair of animal teeth bound together with strip of copper. Length 1·43 in. Sk. '29–1,172; Block 1'; sq. 11·100'; stratum III. In Greece the ox-skull was apotropaic. For another tooth amulet, see 'Gold and Silver Jewellery', ch. 30, no. 80. Cf. p. 196 *supra*. (Pl. 199, no. 17.)

Group B. ARTICLES OF DRESS AND TOILET

Comprising combs and comb-handles, hair-pins, antimony-rods, ear-cleaners and toothpicks, handles of mirrors, fan and other articles.

Class V. *Combs* (nos. 18–23)

These come exclusively from the Sirkap site and date from the first centuries before and after Christ, that is, from the Śaka-Parthian period. They are of a type familiar in the Graeco-Roman world and were no doubt introduced from the West.[1] (Cf. *B.M. Guide to Greek and Roman Life*, nos. 387 and 387, *a*, fig. 141.) One of the Taxila combs (no. 22) is a big, heavy comb with a straight top. The rest are smaller and of lighter make, with curved tops. One only (no. 18) is plain; the rest are decorated with incised circlets or more elaborate designs, including a shell, foliate devices, duck, and a pair of human busts of the kind that are familiar in Graeco-Roman art as well as in the carvings of Gandhāra and Mathurā. Such teeth as survive are sawn very evenly with a fine saw and are only slightly rounded at the ends, not pointed. The smaller and lighter combs may have been used as ornaments in the hair. Ivory and bone were both used in their manufacture.

18. Hair-comb of bone with curved top and no decoration. All teeth broken. Length 2·87 in. Sk. '26–2,770; Block F; sq. 91·51'; stratum IV. First century B.C. Cf. pp. 135, 166, n. 1 *supra*. (Pl. 199, no. 18.)

19. Similar, of bone, with eleven incised circlets on one side and ten on the other. Eight teeth complete. Length 2·31 in. First century A.D. Sk. '26–4,236; Block 1; sq. 13·47', stratum II. Cf. p. 142 *supra*. (Pl. 199, no. 19.)

20. Similar and of same date but of ivory, with seven incised circlets on one side and eight on the other. Length 1·75 in. Sk. '26–460; Block I; sq. 132·65'; stratum II. Cf. p. 171 *supra*.

21. Similar, of ivory, engraved with male and female busts on one side and a duck on the other. Teeth missing. The 'pair of busts' motif was familiar in Graeco-Roman art and no

[1] The hair-comb of the kind described here was called κτείς or κτένιον by the Greeks. ξάνιον was the comb used for wool.

doubt derived from the West; it is frequently seen in Gandhāra and still more frequently in Mathurā reliefs. For the bird motif on this comb, cf. *B.M. Guide to Greek and Roman Life*, no. 387, and Hackin, *Recherches Archéologiques à Begram*, ch. 2 (1937), Pl. LXXVII, fig. 237. Length 1·81 in. Sk. '28–194; Block A'; sq. 23·93'; stratum II. Cf. p. 195 *supra*. (Pl. 199, no. 21.)

22. Similar, of ivory, decorated with floral design in beaded border on one side and conch shell and floral design in beaded border on the other. Length 1·87 in. Sk. '19–1,680; spoil earth. (Pl. 199, no. 22.)

23. Hair-comb of ivory with straight edge at top and sides slightly curved inwards. Decoration of incised circles between parallel beaded borders, which are also incised. The comb is unusually large and heavy, measuring 4·12 × 3·5 × 0·45 in. Sk. '19–708; Block D'; sq. 58·115'; stratum II. Cf. p. 191 *supra*. (Pl. 199, no. 23.)

CLASS VI. *Hair-pins* (nos. 24–34)

These are made of both bone and ivory, and range in date from the fifth century B.C. to the first century A.D. Only two specimens, however, have been found in the Bhiṛ Mound site and both of them have plain knob heads (nos. 24, 25). The pins with ornamental heads come exclusively from Sirkap, and with one exception (no. 26) are referable to the Śaka-Parthian period. Most characteristic of the motifs carved on the heads are the inverted comb and standard cock, the latter of which seems to be copied from Hellenistic prototypes. There is also a peculiar wave design with projecting mouldings on either side (no. 29). Less distinctive are the heads of nos. 28 and 33, which take the form of a bell or pot capital with incised rings below.

24. Hair-pin of bone, with separate knob head of shell. Length 1·56 in. Bm. '19–1,829; sq. 56·6'; stratum IV. (Pl. 199, no. 24 and Pl. 206, no. 15.)

25. Fragment of ivory hair-pin with knob head. Length 1·62 in. Bm. '21–237; sq. 22·59'; stratum III. (Pl. 199, no. 25.)

26. Bone hair-pin, with head in form of inverted comb set up on base. Length 4·87 in. The comb as an ornamental or amuletic motif was familiar in India as far back as the Indus period (*M.I.C.* p. 105 and Pls. XCI and XCII) and is also found on punch-marked coins.[1] Here it was evidently substituted for the open-hand motif found on Greek and Roman pins and used frequently as a lucky amulet.[2] Sk. '29–2,621; Block B'; sq. 35·85'; stratum VI. Cf. p. 129 *supra*. (Pl. 206, no. 18.)

27. Hair-pin of bone, with head in form of cock standing on tree. Length 3·5 in. See nos. 30 and 32 below. The bird motif is also found on early pins from Luristān and on Greek and Roman pins, specimens of which may be seen in the Room of Greek and Roman Life in the British Museum. Sk. '29–2,556; Block A'; sq. 23·87'; stratum IV. Cf. p. 135 *supra*. (Pl. 206, no. 16.)

28. Hair-pin of ivory, with head in form of inverted bell capital and incised rings below. Sk. '29–1,057; Sixth Street (west); sq. 66·113'; stratum IV. Cf. p. 135 *supra*. (Pl. 199, no. 28 and Pl. 206, no. 20.)

29. Part of bone hair-pin, with wave-shaped head and projecting mouldings on either side. Length 3·25 in. Sk. '26–2,969; Block F; sq. 93·50'; stratum III. Cf. p. 166 *supra*. (Pl. 199, no. 29 and Pl. 206, no. 12.)

[1] Cf. Allan, *B.M. Cat. of Anc. Ind. Coins*, pp. xxv, lxiv, 55. For beads at Taxila in the shape of combs, cf. the chapter on 'Beads', p. 748 *infra*.

[2] The fingers are called 'comb-teeth' (κτένας) in Aeschylus, *Agam*. l. 1594.

30. Similar, with head in form of cock standing on abacus. Length 2·37 in. Sk. '29–2,146; Block A; sq. 23·45'; stratum III. Cf. p. 146 *supra*. (Pl. 206, no. 14.)

31. Similar to no. 26, but lower part of pin missing. Length 3·37 in. Sk. '24–419; Block C; sq. 41·48'; stratum II. Cf. p. 149, no. 5 *supra*. (Pl. 206, no. 13.)

32. Similar to no. 30, but the cock is mounted on a capital instead of abacus only. Length 3·37 in. Sk. '24–62; Block C; sq. 41·51'; stratum II. Cf. p. 149, no. 5 *supra*. (Pl. 206, no. 17.)

33. Similar to no. 28; head in form of pot with three incised circles beneath. Length 3·18 in. Sk. '15–370; Block E; sq. 77·49'; stratum II. Cf. p. 162, no. 17 *supra*. (Pl. 199, no. 33 and Pl. 206, no. 22.)

34. Head of bone object of a wave pattern somewhat resembling no. 29, but without the side projections. Length 2·87 in. At the top is a groove with three holes for rivets; the shaft at the other end is broken. It may have been either a hair-pin or a knife-handle. In the former case, the groove and rivet holes may have been meant for the attachment of an additional ornament, possibly of metal. Sk. '15–813; Block C; sq. 45·59'; stratum II. Cf. p. 149, no. 2 *supra*. (Pl. 199, no. 34.)

CLASS VII. *Antimony-rods, ear-cleaners and toothpicks* (nos. 35–42)

These are classified under one head, as two of them are frequently combined together. They take the form of short rods of bone, ivory, copper, bronze or lead, measuring from 3 to 6 in. in length. If required for smearing antimony or *kohl* round the eyes the rod is slightly clubbed; if required as a toothpick or nail-cleaner, it is pointed; if as an ear-cleaner, it is furnished with a tiny scoop. Some of the rods are clubbed at both ends; others have a club at one end and a point or scoop at the other; others have a point at one end and a scoop at the other. The earliest specimens found at Taxila date from the third, or possibly fourth, century B.C.; the latest from the first century A.D. In the earliest specimens from the Bhiṛ Mound, bone or ivory is used for the simple clubbed antimony-rod, copper for the antimony-rod and ear-cleaner combined. In the later specimens from Sirkap, bone, ivory, copper, bronze and lead are used for the antimony-rods; bone, ivory and copper for the combination of ear-cleaner and toothpick; and copper only for the combination of antimony-rod and toothpick. The combination of antimony-rod and ear-cleaner has not been found in Sirkap. Antimony-rods or *kohl*-sticks, as they are sometimes called, were used in Egypt and the West from a very early age, and it is not unlikely that they and the ear-cleaners were introduced at Taxila by the Greeks. The usual Greek word for antimony was στίμμι or στῖμι. Ear-cleaners were called ὠτογλυφίς by the Greeks, *auriscalpium* by the Romans. The clubbed antimony-rod was doubtless used also for ordinary painting under the eyes with lamp-black (ἄσβολος). See 'Copper and Bronze', Class VIII, nos. 212–25, where references are given to similar Egyptian and Roman objects.

Type *a*. *Antimony-rods of bone and ivory*. From the Bhiṛ Mound and Sirkap.

35. Ivory rod for smearing antimony or *kohl* round the eyes. Length 4 in. The ends are rounded but scarcely clubbed at all. Bm. '19–324; sq. 5·59'; stratum III. (Pl. 206, no. 26.)

36. Similar, of bone, roughly finished. Length 3·93 in. Bm. '20–1,588; sq. 13·30'; stratum II. (Pl. 206, no. 25.)

37. Similar, of ivory, with both ends clubbed. Length 5·87 in. Broken in middle. Sk. '26–2,773; Block F; sq. 91·57'; stratum IV. (Pl. 206, no. 24.)

38. Similar, of bone, broken at ends. Length 3·37 in. Sk. '24–1,456; Block D; sq. 63·57'; stratum III. Cf. p. 155 *supra.*

Type *b*. *Ear-cleaners and toothpicks combined.* From the Śaka-Parthian strata in Sirkap only.

39. Combination of ear-cleaner and toothpick, of bone. Length 3·56 in. Sk. '27–137; Block K'; sq. 163·112'; stratum III. Cf. p. 180 *supra.* (Pl. 206, no. 29.)

40. Similar. Length 4·5 in. Sk. '29–1,742; Block D'; sq. 65·88; stratum III. Cf. p. 191 *supra.* (Pl. 206, no. 27.)

41. Similar, damaged. Length 3·37 in. Sk. '26–2,181; Block G; sq. 97·53'; stratum II. Cf. p. 169 *supra.*

42. Similar, of ivory, broken. Length 2·5 in. Sk. '13–1,168; Block E; sq. 75·51'; stratum II. Cf. p. 162; no. 17 *supra.*

CLASS VIII. *Handles of mirrors, fan, combs and other articles* (nos. 43–59)

Like the metal mirrors themselves ('Copper and Bronze', nos. 208–11), mirror-handles come exclusively from Sirkap and are referable to the first century B.C. and A.D. Mirrors are one of the many things introduced from the Greek Orient either by the Greeks themselves or by their successors, the Śakas or the Parthians. Their handles are made of both bone and ivory, and fall into two classes, viz.: (*a*) those decorated with figure-carvings in relief, and (*b*) those turned on the lathe and decorated with mouldings and incised lines and hatching.

Type *a*. *Handles of mirrors carved in relief.*

43. Bone handle, with the figure of a woman carved in relief on one side. She wears long ear ornaments, necklace with pendant, girdle, heavy anklets and bangles. The bone is hollow. For the anklets, cf. 'Gold and Silver Jewellery', nos. 148–65. Length 6·31 in. Sk. '28–2,483; Block F'; sq. 91·92'; stratum IV. Cf. pp. 135, 183 *supra.* (Pl. 203, *k*.)

44. Similar, of rough workmanship. The woman's hair is dressed in a plain mass on either side of head. Length 6·2 in. Sk. '37; sq. 72·75'; Main Street; stratum II.

45. Similar. Length 5·25 in. Feet and anklets missing. The woman wears a garland on her head, as in no. 47 and in numerous stucco and other figures of the Parthian period. The 'diamond and reel' motif of her girdle resembles that found in stone carvings of the Early Indian School. Observe the long pendants on either side of the head, which, like those in no. 46, seem to be suspended from the head-dress, not from the ears. There is a socket-hole in the right top corner to take the tenon of the mirror. Sk. '28–1,777; Block F'; sq. 85·89'; stratum II. Cf. p. 183 *supra.* (Pl. 203, *l*.)

46. Similar to preceding, but without garland; and the girdle consists of a plain broad band. Length 6·75 in. Ml. '20–91; sq. 63·84'; 2 ft. 6 in. below surface. Cf. p. 215 *supra.* (Pl. 203, *m*.)

47. Handle of bone, broader than the preceding specimens, with male and female figures standing side by side. The male figure (to the left) wears a garment falling over his left shoulder, garland on head, bangles and girdle. The female wears her hair dressed in a double tier, crossed breast chain, bangles, girdle and anklets. The workmanship is crude and primitive.

There are two socket-holes in the top. Size 4·37 × 2·37 in. Sk. '20–769; Block D'; sq. 57·82'; stratum I. Cf. p. 191 *supra*. (Pl. 203, *n*.)

Type *b*. *Mirror and other handles turned on lathe and decorated with mouldings and incised lines and hatching.*

48. Bone mirror (?) handle turned on lathe and decorated with incised parallel rings, mouldings and hatching. Length 3·37 in. Sk. '24–796; Block C; sq. 45·45'; stratum III. Cf. p. 149, n. 2 *supra*.

49. Similar. Length 2·87 in. Sk. '26–2,487; Block G; sq. 107·49'; stratum III. Cf. p. 169 *supra*. (Pl. 199, no. 49.)

50. Similar, with base-like end and more pronounced mouldings. Length 3·31 in. Sk. '17–40; Seventh Street (west); sq. 80·78'; stratum II. (Pl. 199, no. 50.)

51. Similar. Length 3·25 in. Sk. '14–219; Block K; sq. 172·55'; stratum II. Cf. p. 177 *supra*.

52. Similar, but smaller and with deeper mouldings, and transverse hole near bottom. This and the three handles following were probably not mirror-handles. Length 2 in. Sk. '12–400; Block B'; sq. 38·87'; stratum II. Cf. p. 194 *supra*. (Pl. 199, no. 52.)

53. Similar to preceding, with double torus moulding and without cross-hatching. Remains of iron fitting at top. Length 2·43 in. Dh. '16–752; mon. court A; 14 ft. 6 in. below surface. Cf. pp. 278, 294 *supra*. (Pl. 199, no. 53.)

54. Similar but plainer, with projecting tenon at one end and two holes pierced transversely across body. Length 2·31 in. Sk. '22–334; Block A'; sq. 16·98'; stratum II. Cf. p. 195 *supra*. (Pl. 199, no. 54.)

55. Similar, with broken end. Length 2·12 in. Sk. '15–514; Block H; sq. 125·68'; stratum II. Cf. p. 170 *supra*. (Pl. 199, no. 55.)

56. Mirror-handle of ivory, with single torus moulding resembling the handle of a Greek mirror from the Bulandi Bagh at Patna (Pāṭaliputra), now in the museum at Patna. Length 2·62 in. Sk. '16–1,564; Block 1; sq. 11·64'; stratum II. Cf. p. 142 *supra*. (Pl. 199, no. 56.)

Type *c*. *Handle of fan or fly-whisk.*

57. Ivory handle of a fan or fly-whisk provided with a hole at the butt-end for suspension and three holes at the other end for attaching the fan or whisk. The fan (ῥιπίς) was in daily use among the Greeks, and the fly-whisk (κάλλυντρον) was also familiar to them, but either object may equally well have been Indian. Length 10·43 in. Sk. '28–2,647; Block 1'; sq. 12·89'; stratum III. Cf. p. 196 *supra*. (Pl. 200, *o*.)

Type *d*. *Handles of combs* (?). These may have been intended for metal combs, possibly for combing wool, but their purpose is uncertain. One is of bone and dates from the fourth or fifth century B.C., the other of ivory and dates from about the beginning of the Christian era.

58. Broad handle of bone with a groove underneath for a metal comb (?). Length 2·81 in. Bm. '19–1,523; sq. 5·59'; stratum IV. (Pl. 200, *f*.)

59. Similar, but of ivory and decorated on the back with incised parallel lines running the length of the handle. Length 4 in. Sk. '27–358; Trench D 85; stratum IV. (Pl. 200, *g*.)

CLASS IX. *Flesh-rubber* (no. 60)

60. Irregular disk of bone with a number of punctured dots on one surface. Diam. 2·25 in. Bm. '30–1,126; sq. 13·62'; stratum IV. (Pl. 205, *i*.)

GROUP C. DOMESTIC ARTICLES

Comprising knife-handles, spoons, stili, and spindle-whorls.

CLASS X. *Handles of knives and other articles* (nos. 61–6)

These date from the Śaka-Parthian period and are made of bone and ivory.

61. Bone handle of a small knife. Length 2·56 in. At one end there is a groove with three rivet holes for fixing the blade; at the other a heart and circle design is fretted through the thickness of the handle. Sk. '12–1,014; Block C; sq. 44·64'; stratum III. Cf. p. 149, n. 2 *supra*. (Pl. 200, *b*.)

62. Similar, of ivory, with a *triratna* at the butt-end of the handle. Length 2·81 in. Sk. '13–17; Block G; sq. 97·65'; stratum III. Cf. p. 169 *supra*. (Pl. 200, *d*.)

63. Bone side-piece of a knife-handle decorated with incised circlets and chevrons. Near one end is an iron rivet. Length 3·12 in. Sk. '28–67; Block A'; sq. 15·87'; stratum II. Cf. p. 195 *supra*. (Pl. 200, *c*.)

64. Similar, of ivory, without decoration. Two holes for rivets. The ivory is burnt black, and part is broken. Length 2·25 in. Sk. '17–266; Main Street; sq. 106·73'; stratum II. (Pl. 200, *n*.)

65. Similar to preceding but decorated with incised circlets. Two holes for rivets. Length 2·81 in. Sk. '20–2; spoil earth; stratum II. (Pl. 200, *e*.)

66. Bone handle with leaf-shape terminal, slightly convex on both sides. Length 3·56 in. For copper handles with leaf-shape terminals, cf. 'Copper and Bronze', no. 310; Dh. '13–1,725; 3 ft. below surface. Cf. p. 294 *supra*. (Pl. 200, *l*.)

CLASS XI. *Spoons* (nos. 67, 68)

There are only two specimens of spoons made of bone, one from the Greek stratum, the other from the late Śaka-Parthian stratum, in Sirkap.

67. Spoon of bone with shallow bowl. The handle, partly broken, is flat in front, convex at back. Length 4·25 in. Sk. '29–2,761; Block B'; sq. 35·89'; stratum VI. Cf. p. 129 *supra*. (Pl. 200, *h*.)

68. Similar, with leaf-shaped shallow bowl. Handle missing. Length 1·75 in. Sk. '22–163; Block 1'; sq. 11·93'; stratum II. Cf. p. 196 *supra*. (Pl. 200, *k*.)

CLASS XII. *Writing stili* (γραφίς, στῦλος, stilus) *and modelling implements* (nos. 69–81)

With two or three exceptions all the bone and ivory stili, like the copper calami, come from Sirkap, and there can be no doubt of their western origin. The stilus was used for writing on wax; the calamus for writing with ink on parchment, birch-bark, etc. The average length of the stili is about 4·5 in., but some are considerably shorter, others considerably longer. Some have a fine smooth point, others a ball point. In some, again, the butt is flattened like a chisel for smoothing out the wax; in others it is rounded.

The exceptions referred to were found in the Bhir Mound and date from the third or possibly fourth century B.C. One of them, no. 69, looks like one of the

rough bone arrow-heads described below (nos. 105–7), but a tiny ball at the point leaves no doubt that, even if it was intended for an arrow-head in the first instance, it was converted into a stilus or modelling tool afterwards. The other (no. 70) is the usual kind of stilus with plain point and rounded butt, but somewhat heavier than the Sirkap examples. It should be added that the ball-pointed specimens may have served as modelling tools.[1] An example of a modelling tool furnished with such a ball point at one end is figured among some ancient Roman specimens from Arezzo in Blümner, *Technologie*, II, p. 110 and Schreiber, *Atlas of Classical Antiquities*, Pl. LXVIII, 11.

69. Stilus (?) of bone, resembling a rough arrow-head of Class XVIII, but with ball point. Length 2·5 in. Bm. '21–205; sq. 22·60'; stratum III.

70. Bone stilus, with plain point and rounded butt. Length 5·75 in. Bm. '20–716; sq. 35·28'; stratum II. For examples of classical stili with rounded or knob butts, cf. Schreiber, *op. cit.* Pl. XCI, 3, 5, 7. (Pl. 206, no. 30.)

71. Bone stilus, with plain point and flattened butt. Length 4 in. Sk. '26–2,788; Block F; sq. 89·50'; stratum III. For examples of classical stili with flattened butts, cf. Schreiber, *op. cit.* Pls. XC, 5 and XCI, 6. Cf. p. 166 *supra*. (Pl. 206, no. 31.)

72. Similar, but with rounded butt. Length 4·5 in. Sk. '26–1,108; Block I; sq. 135·49'; stratum III.

73. Similar to no. 71. Length 3·93 in. Sk. '24–149; Block C; sq. 45·40'; stratum II. Cf. p. 149, n. 2 *supra*. (Pl. 206, no. 33.)

74. Similar, but with tenon at head. Length 3·25 in. Sk. '15–933; Block K'; sq. 168·99'; stratum II. The tenon was presumably intended for fixing an ornamental terminal such as that figured in Schreiber, *op. cit.* Pl. LXXXIX, 5. Cf. p. 180 *supra*.

75. Similar, but with rounded butt, roughly cut. Length 4·49 in. Sk. '26–1,437; Block J; sq. 145·47'; stratum II. Cf. p. 171 *supra*. (Pl. 206, no. 34.)

76. Bone stilus (?) with ball point and flattened butt. Length 4·5 in. This and the following specimens may have served as modelling tools rather than writing stili. See above. Sk. '24–502; Block C; sq. 41·53'; stratum III. Cf. p. 149, n. 2 *supra*. (Pl. 206, no. 36.)

77. Similar, with ball point broken. Butt slightly flattened. Length 5·6 in. Sk. '13–1,345; Block E; sq. 72·57'; stratum II. Cf. p. 162, n. 1 *supra*.

78. Similar, with ball point and flattened butt. Length 4·31 in. Sk. '26–2,009; Block I; sq. 129·40'; stratum II. Cf. p. 171 *supra*. (Pl. 206, no. 35.)

79. Similar to preceding, but of ivory. Length 4 in. Sk. '15–395; Block H; sq. 118·49'; stratum II. Cf. p. 170 *supra*.

80. Similar, but of bone. Length 3·18 in. Sk. '15–248; Block H; sq. 116·43'; stratum II. Cf. p. 170 *supra*.

81. Similar, but with longer shaft, broken and rounded off, and well-made chisel-shaped butt. Length 6·12 in. Sk. '28–217; Block A'; sq. 15·92'; stratum IV. Cf. p. 135 *supra*. (Pl. 200, *m* and Pl. 206, no. 38.)

CLASS XIII. *Spindle-whorls* (nos. 82–4)

Very few specimens of spindle-whorls made from bone or ivory have been found at Taxila, and all of them come from Bhiṛ Mound strata of the fourth to third centuries B.C.

[1] It is noteworthy in this connexion that the Greek word γραφίς is used for both a stile and a graver.

82. Spindle-whorl of bone in form of flat disk pierced with hole at centre. Diam. 1 in. Bm. '19–2,027; sq. 29·11'; stratum III. (Pl. 200, *r* and Pl. 203, *r*.)

83. Similar, but of ivory and plane-convex shape. Diam. 0·93 in. Bm. '19–1,397; sq. 51·8'; stratum II. (Pl. 204, *y*.)

84. Similar to no. 83. Diam. 1·6 in. Bm. '21–1,088; sq. 36·20'; stratum II. (Pl. 200, *u*.)

GROUP D. GAMESMEN AND PLAYTHINGS

These comprise: (*a*) flat tablets, circular, square, or hexagonal in shape, which probably served as draughtsmen or counters; (*b*) playing dice of the long Indian type; and (*c*) knuckle-bones for playing the Greek game of *astragaloi*.

CLASS XIV. *Draughtsmen or counters* (nos. 85–91)

These come exclusively from the Bhiṛ Mound and are referable to the fifth to third centuries B.C. They are made of both bone and ivory, and usually take the form of flat circular disks, flat on the lower side and with a raised boss in the centre of the upper side, surrounded by concentric circles or two concentric rows of slightly raised excrescences. Others are thin, square, or hexagonal tablets. The circular ones vary in diameter from 0·7 to 1·15 in. and in thickness from 0·8 to 0·18 in. The upper surface is highly polished.

85. Disk of ivory, with two concentric rows of circular excrescences round centre—four in inner row, eight in outer. Probably used as a draughtsman or counter. Diam. 0·68 in. Bm. '21–909; sq. 19·56'; stratum IV. (Pl. 200, *i*.)

86. Similar, with nine concentric rings round embossed centre. Diam. 1 in. Bm. '21–345; sq. 30·13'; stratum IV. (Pl. 203, *q*.)

87. Similar, with three concentric circles round central boss. Stained reddish and grey. Diam. 0·81 in. Bm. '24–613; sq. 16·54'; stratum III. (Pl. 203, *s*.)

88. Similar to no. 85. Slightly damaged. Diam. 1·12 in. Bm. '19–63; sq. 8·44'; stratum II. (Pl. 203, *t*.)

89. Hexagonal ivory piece, slightly concave on upper surface. Diam. 0·68 in. Bm. '20–1,336; sq. 28·20'; stratum II. (Pl. 203, *v*.)

90. Square tablet of ivory with crossed diagonal lines incised on one side. 0·56 in. square. Bm. '21–722; sq. 47·60'; stratum III. (Pl. 200, *j*.)

91. Similar, but of bone, with arrow, *nandipada* and swastika symbols engraved on one side —perhaps for luck. Size 0·62 × 0·68 in. Bm. '20–1,596; sq. 29·36'; stratum III. (Pl. 203, *u*.)

CLASS XV. *Dice* (nos. 92–8)

With one doubtful exception from the Bhiṛ Mound, all the playing dice found at Taxila come from Sirkap and Sirsukh, and are referable to the Greek and Śaka-Parthian period and later. They are made of ivory, bone, slate[1] and terra-cotta;[2] are invariably oblong in shape, not cubical; and range in size from 1·8 × 0·22 in. to 3·78 × 0·65 in.[3] The numbers 1, 2, 3 and 4 are indicated by concentric circles or simple dots and as a rule follow each other consecutively round the four long

[1] Cf. 'Stone Objects', ch. 25, no. 154.

[2] Cf. 'Terra-cottas', ch. 24, nos. 122–5 (Class XX).

[3] The smallest specimen comes from Sirsukh and is probably of late date.

sides, but occasionally 1 is placed opposite to 2 or 4. All specimens of bone and ivory come from Sirkap.

92. Three oblong dice of bone with 1 to 4 marked on sides. The marks consist of four circlets within a circle. Length 3·75 in. Sk. '26–9; Block C'; sq. 47–48·95'; stratum V. Cf. pp. 125, 135 *supra*.

92, *a*. Oblong playing die of ivory with 1 to 4 marked on sides. The marks consist of four circlets within a circle. The ends of the die are decorated with incised lines and circlets. Mark 1 is on the side opposite to mark 4. Length 3·62 in. Sk. '29–1,658; Block C'; sq. 46·88'; stratum IV. Cf. p. 135 *supra*. (Pl. 200, *p*.)

93. Similar, but of bone, and marks consist of dot surrounded by two concentric circles. Mark 1 is opposite to 3. Length 3·5 in. Sk. '14–680; Block C'; sq. 52·75'; stratum IV. Cf. pp. 135, 193 *supra*. (Pl. 200, *q*.)

94. Similar, of ivory. Bands of three parallel lines at either end. Mark 1 is opposite to 3. Length 3·62 in. Sk. '20–631; Block A'; sq. 18·81'; stratum III. Cf. p. 195 *supra*.

95. Similar, of bone. Mark 1 is opposite to 4. Length 3·5 in. Sk. '14–100; Block C'; sq. 42·74'; stratum III. Cf. p. 193 *supra*.

96. Similar to preceding. Length 3·5 in. Sk. '24–86; Block 1'; sq. 14·94'; stratum II. Cf. p. 196 *supra*.

97. Similar, but marks consist of group of three circlets surrounded by two concentric circles. Bands of three circlets between two incised parallel lines on each side at ends. Mark 1 opposite to 4. Length 3·87 in. Sk. '14–392; Block G; sq. 107·56'; stratum II. Cf. p. 169 *supra*. (Pl. 200, *t*.)

98. Similar, but marks consist of single dot in circle. Two incised parallel lines at ends. Mark 1 opposite to 4. Length 3·12 in. Sk. '26–436; Block I; sq. 140·62'; stratum II. Cf. p. 171 *supra*. (Pl. 200, *v*.)

CLASS XVI. *Knuckle-bones* (no. 99)

Knuckle-bones (ἀστράγαλοι) were used by the Greeks from an early age for playing a game somewhat similar to dice. Later the word ἀστράγαλοι was applied to dice proper, but they continued to have only four flat sides, the other two being round. The four flat sides were marked with the number 1 (represented by a pip as in the dice of Class XV) opposite to 6, and 3 opposite to 4. 'The numbers 2 and 5 were wanting. In playing they threw four ἀστράγαλοι out of the palm of the hand or from a box (πύργος). The best throw (βόλος), when each die came up differently, was called 'Αφροδίτη or Μίδας or 'Ηρακλῆς; the worst, when all the dice came up alike, κύων.' (Liddell and Scott, *Lex. s.v.* ἀστράγαλος.)

99. The only *astragaloi* found at Taxila were a large group of the old-fashioned, uncut knuckle-bones, such as are depicted in Greek vase paintings of the fourth and fifth centuries B.C. They were unearthed in Block F'; sq. 89–90·97'; stratum III. Cf. p. 182 *supra*.

CLASS XVII. *Toy furniture or miniature chests* (nos. 100–4)

These articles are usually made of ivory (there is only one of bone), and are referable to the first century A.D. They call to mind the toy furniture from Hawāra in Roman Egypt figured in Flinders Petrie, *Objects of Daily Use*, Pl. LIV, 554 and 555, though the latter is more roughly made. The specimens described below, all from Sirkap, seemingly belong to six different pieces—probably

diminutive trinket chests (Gk. κιβώτιον), but possibly toy tables or even bedsteads. Pl. 204, *p* shows a restoration of a chest or table made up of members from several specimens.

100. Ivory corner-post of a miniature chest or toy table, with six holes for the attachment of the side-pieces. Provided with foot-mouldings and decorated on the outer faces with incised horizontal lines and concentric circles. Height 2·93 in. Sk. '24–523; Block B; sq. 39·46'; stratum II. Cf. p. 148, no. 6. (Pl. 204, *n*.)

101. Similar, but of bone. Lower part rounded by chisel, not turned on the lathe. Height 2·81 in. Sk. '20–294; Block D'; sq. 54·98'; stratum II. Cf. p. 191 *supra*.

102. Similar to no. 100, but slightly plainer. Length 2·68 in. Sk. '26–1,935; Block H; sq. 116·56'; stratum II. Cf. p. 170 *supra*. (Pl. 204, *o*.)

103. Rectangular side-piece of chest or table made of ivory and decorated with incised circlets on outer side. Seven peg-holes for fixing to legs and top. Size 3·5 × 1·62 in. Sk. '29–2,104; Block A; sq. 17·43'; stratum II. Cf. p. 146 *supra*. (Pl. 204, *r*.)

104. Similar to preceding, but decorated with two rows of double concentric circlets between line-borders. Length 3·5 in. Sk. '28–119; Block 1'; sq. 14·86'; stratum III. Cf. p. 196 *supra*. (Pl. 204, *q*.)

GROUP E. WEAPONS AND HORSE-BRIDLES

CLASS XVIII. *Arrow-heads* (nos. 105–14)

The bone and ivory arrow-heads from Taxila are of four types, viz.: (*a*) roughly shaped and sharpened at both ends. These are the objects which Cunningham took to be 'spillikins' or 'tip-cats', but they are much too small for the game in question and there can no longer be any doubt that they served as arrow-heads; (*b*) with smooth circular point and well-defined tang; (*c*) with a point similar to (*b*) but with a hollow socket-hole behind for the shaft-tenon; (*d*) with a trilateral point and hollow socket-hole behind. Type (*a*) is found in both the Bhiṛ Mound and Sirkap and was in use from the fifth or sixth century B.C. to the first century A.D.; but the earlier Bhiṛ Mound specimens are distinguished from the Sirkap ones by having the point of the arrow-head somewhat better finished than the tang. Types (*b*), (*c*) and (*d*) are found exclusively in the Bhiṛ Mound and date from the fourth and third centuries B.C.

Kauṭilya (bk. II, ch. 18) mentions arrows tipped with bone or wood as well as with metal, but these bone and ivory arrow-heads from Taxila could hardly have been intended for serious warfare, unless they were poisoned. Possibly they were employed for practice archery[1] or for shooting birds; or it may be that they were found useful for the town police as being less deadly than iron ones.

The following are typical specimens:

Type *a*. ***Roughly shaped and sharpened at both ends.***

105. Bone arrow-head with sharp point and tapering tang. Length 3·18 in. Bm. '19–1,995; sq. 10·38'; stratum IV. (Pl. 206, no. 9.)

106. Similar. Length 2·5 in. Bm. '21–254; sq. 27·60'; stratum IV. (Pl. 206, no. 6.)

[1] For a classical scene of boys practising archery, cf. Schreiber, *op. cit.* Pl. LXXX, 7.

107. Similar, but no difference between the point and tang. Sk. '15–482; Block K; sq. 157·112'; stratum II. Cf. p. 177 *supra*. (Pl. 206, no. 10.)

Type *b*. *With smooth circular point and well-defined tang.*

108. Arrow-head of bone with circular point divided from tang by projecting flange. Length 3·12 in. Bm. '21–207; sq. 20·59'; stratum III. (Pl. 206, no. 3.)

109. Similar but with rebate between point and tang. Length 2·5 in. Bm. '19–422; sq. 12·30'; stratum II. (Pl. 206, no. 4.)

110. Similar. Length 2·37 in. Bm. '21–898; sq. 45·130'; stratum II.

Type *c*. *With circular point as in Type* b, *but with hollow socket at back for insertion of shaft tenon.*

111. Bone arrow-head with long circular point and socket-hole at back. Length 3·62 in. Bm. '24–894; sq. 14·57'; stratum IV. (Pl. 206, no. 11.)

112. Similar, but with shorter point. Length 1·81 in. Bm. '19–2,063; sq. 12·29'; stratum II. (Pl. 206, no. 7.)

113. Similar. Length 1·37 in. Bm. '21–587; sq. 21·8'; stratum II.

Type *d*. *With trilateral point and hollow socket behind.*

114. Ivory arrow-head with trilateral point and circular shaft provided with socket-hole behind. Length 2·37 in. Bm. '20–809; sq. 18·39'; stratum II. (Pl. 206, no. 8.)

CLASS XIX. *Cheek-bars of horses' bridles* (nos. 115–18)

Cheek-bars of horses' bridles have been found only among the Parthian remains in Sirkap. Some are made of horn, others of bone usually curved in imitation of horn, and others of iron (cf. 'Iron Objects', ch. 27, nos. 99, 100). As explained in the chapter on 'Iron Objects', Class XXII, the cheek-bar or cheek-ring was used with the snaffle-bit to prevent the rein slipping into the mouth. The horn and bone specimens are invariably pierced with two holes in which an iron staple was fixed for the bit-rings to pass through, as shown in Pl. 205, *b*, which illustrates an ancient bit, with cheek-bars complete, from Central Asia.

115. Cheek-bar of horn with two tines. Length 8·75 in. The bar is pierced with two holes at 2·25 and 3·5 in. above the base. Decorated with three incised parallel bands near base. Sk. '15–166; Block F'; sq. 90·79'; stratum III. Cf. p. 183 *supra*; *A.S.R.* (1915), Pl. IX, 4. (Pls. 200, *w*; 205, *e*.)

116. Similar, but of bone curved in imitation of a horn. Length 4 in. Sk. '14–1,555; Block C'; sq. 45·79'; stratum II. Cf. p. 193 *supra*. (Pl. 200, *x*.)

117. Similar to preceding, but longer. Decorated with incised parallel lines and chevron near base. Length 6·37 in. Sk. '14–134; Block K; sq. 167·48'; stratum II. Cf. p. 177 *supra*. (Pl. 200, *y*.)

118. Similar, but not curved. Decorated with two bands of incised lines round upper half. Broken. Length 3·62 in. Ml. '25–222; sq. 64·74'; 2 ft. below surface. Cf. p. 216 *supra*. (Pl. 200, *s*.)

GROUP F. MISCELLANEOUS

CLASS XX. (NOS. 119–28)

119. Profile head of ram in low relief, of fossilised ivory. Length 1 in. The relief is admirably carved. It is flat at the back and may have been affixed to a knife-handle or pin-head. Among the Romans a ram's head was an auspicious symbol of hospitality (cf. Dar. et Sag. *s.v.* 'Hospitum'). For another ram's head carved on a scaraboid seal, see 'Seals and Sealings', ch. 34, no. 11. Both objects come from the Bhir Mound and are referable to the same period. For the ram motif in other objects, see 'Copper and Bronze', ch. 28, nos. 298, 299; 'Seals', ch. 34, no. 10; 'Beads', ch. 37, pp. 737 and 749. The fossilised ivory of which this and no. 122 are made probably came from Siberia, whence the Mughals also obtained their supply of it. Bm. '20–596; sq. 34·27'; stratum II. (Pl. 208, no. 52.)

120. Ivory handle or pendant adorned on either side with a bearded Greek head of the philosopher type, seemingly of Socrates. The carving is good Hellenistic work. Through the middle of the pendant is a vertical hole and, at the back of the heads, two diagonal channels, presumably for metal bands. The two heads are much worn, and this, coupled with the large size of the hole, suggests that the object served as a handle rather than as a pendant. Width 2·12 in. Illustrated in *A.S.R.* (1912), Pl. xx, *d.* Sk. '12; Trench A 459; from Early Śaka or Greek level beneath forecourt of stūpa-chapel in Block D. Cf. p. 151 *supra.* (Pl. 203, *p.*)

121. Crude standing figure of a man, in the round—probably a doll. The man wears a long tunic with a band above the waist and a necklace. Through the body from shoulder to shoulder there is a hole for the attachment of movable arms; and another tiny hole from the back to the front of the shoulder, for the same purpose. Height 2·75 in. Bm. '16–324; stratum II. (Pl. 203, *o.*)

122. Side-piece of dagger-hilt of fossilised ivory (cf. no. 119 *supra*). Two holes for rivets. Length 4·25 in. Bm. '24–515; sq. 26·57'; stratum IV. Cf. p. 122 *supra.* (Pl. 200, *a.*)

123. Leaf-shaped lid of small box with a depression underneath, contrived to slide over the top of the box. It is 2 in. long and made of ivory. Cf. Flinders Petrie, *op. cit.* Pl. XXVI, 11, *a.* Sk. '26–2,705; Block F; sq. 91·48'; stratum IV; Śaka period. Cf. pp. 135, 166, n. 1 *supra.* (Pl. 204, *x.*)

124. Leg of ivory belonging to a piece of furniture. At the bottom is a well-turned base moulding; at the top, a tenon. Length 7·12 in. Sk. '16–10; Main Street; sq. 69·73'; stratum III. (Pl. 204, *s.*)

125. Bone handle or terminal, with bead-and-reel moulding and square tenon at base. Length 2·62 in. Bm. '21–1,546; sq. 43·127'; stratum II. (Pl. 204, *t.*)

126. Similar, but broken at top. Length 2·06 in. Sk. '29–600; Block D'; sq. 59·103'; stratum III. Cf. p. 191 *supra.* (Pl. 204, *u.*)

127. Similar, with pear-shaped head; broken at other end. Length 1·56 in. Sk. '22–491; spoil earth. (Pl. 204, *w.*)

128 Stopper or terminal of bone. Length 1·25 in. Sk. '13; Trench A456; stratum II. (Pl. 204, *v.*)

Chapter 33. SHELL OBJECTS

Shell industry in prehistoric times

The use of shell for the manufacture of such objects as bangles, dippers and beads, as well as for inlay-work, goes back to a remote antiquity in India. That the industry had reached a high degree of proficiency among the people of the Indus civilisation as early as the beginning of the third millennium B.C., as it did also among the Sumerians and Babylonians, is evident from the many fine specimens of shell-work found among the ruins of Mohenjo-daro[1] and Harappā; and that it was widely diffused at that time in other parts of the peninsula is proved by the discovery of shell-cutting centres in the Southern Dekhan, Kāthiāwār and Gujarāt, where fragments of the cut shells have been found in association with flint and stone implements, just as they have been in the Chalcolithic sites on the banks of the Indus.[2] It seems safe, therefore, to assume that this indigenous industry came down in an unbroken tradition from prehistoric to historic times, and that the methods of manufacture two thousand years ago were much the same as they had been two or three thousand years earlier, and as they still are among the shell-workers who carry on the industry at Dacca and many other places. These methods have been described in detail by James Hornell in *Memoirs of the Asiatic Society of Bengal*, vol. III (1910–14), and summarised in chapter XXVIII of *Mohenjo-daro and the Indus Civilisation*. They need not, therefore, be repeated here. It is to be noted, however, that the industry is nowadays mainly concerned with the manufacture of bangles, as it evidently was at Taxila, and that the shell from which the bangles were then as now usually made was the *śank* or *Xancus pyrum*, formerly known as *Turbinella pyrum*.

Methods of manufacture

Varieties of natural shells at Taxila

Below is given a list (nos. 1–18) of the various kinds of shells which have been found in their natural uncut state at Taxila. With the exception of the two fresh-water molluscs (nos. 6, 7) and of the rare scallop shell from the Pacific (no. 1), all are more or less common round the coasts of India. The first in the list is especially interesting as indicating a trade connexion (presumably through Central Asia) between the North-West and the shores of the Pacific as early as the first century of our era. The second, *Xancus pyrum*, is the shell still used in the manufacture of bangles and other objects, and is common on the coasts of Kāthiāwār, South India and Ceylon. Like *X. pyrum*, *Murex* (*Chicoreus*) *anguliferus* (no. 3) might also have been used as a trumpet, but did not lend itself to the manufacture of bangles. Of the remaining shells, no. 5 (*Pinctada margaritifera*) is the familiar pearl oyster of the Ceylon and South Indian fisheries. Three others yield mother-of-pearl, viz.: *Arca granosa* (no. 4), *Lamellidens marginalis* (no. 6), and *Parreysia favidens* (no. 7); while four are cowries, used in ancient as in modern times for money,

[1] *M.I.C.* pp. 32, 171, 173, 195, 478–9, 563–5, 669–71.
[2] *Ibid.* pp. 670–1.

viz.: *Erosaria turdus* (no. 9), *E. helvola* (no. 10), *E. annulus* (no. 11) and *E. moneta* (no. 12).[1]

Character of objects made from them

The articles fashioned from shell consisted almost entirely of beads and bangles. Apart from these two categories, the only articles made of shell number no more than half a dozen in all, viz. a portrait head of a man in relief (no. 42), three roundels (nos. 43–5), a rectangular tablet (no. 47) and a dipper (no. 48). Of the beads an exhaustive account is given in Beck's special *Memoir* on the subject,[2] and it would be superfluous to repeat what he has said there. It may be noted, however, that of the 117 typical specimens examined by Beck, 24 came from the Bhiṛ Mound, 42 from Sirkap, 23 from the Dharmarājikā, 15 from Jaṇḍiāl, and the remaining 13 from the early medieval sites of Sirsukh, Lalchak, the Bhallaṛ Stūpa and Mohṛā Morādu; and taking into consideration the extent of the respective excavations on these sites, we may infer that beads made of shell were specially fashionable during the Maurya period, rather less so during Śaka-Parthian times, and that their popularity had very definitely waned by the early medieval age. In the Maurya period the principal shapes were the square or interlocked bicone, collared barrel, drop- or bud-pendant, cross and *triratna*; in the first century B.C., the button, bell-pendant, double-axe and stepped merlon; in the first century A.D., the tabular bicone, dumb-bell, star, single and double drop-pendant, leaf-shaped pendant and Corinthian capital; and in the fourth to fifth centuries A.D., the wedge-shaped and toggle. The dates of others, notably of the short barrel type and leech type, lie between the first and fifth centuries A.D., but cannot be more accurately determined.

Shell beads

Shell bangles

Shell bangles, like shell beads, seem to have been more popular in Maurya times than later. Out of 130 specimens recovered from the excavations, 39 are from the Bhiṛ Mound, 13 from Sirkap, 28 from the Dharmarājikā, 26 from Jaṇḍiāl, 21 from Mohṛā Morādu, and 3 from Sirsukh. On the other hand, it is noteworthy that out of the 39 from the Bhiṛ Mound only three are carved,[3] and that almost all the more ornate examples are of relatively late date (third to fifth centuries A.D.). Not counting the simple incised cross on no. 21, *a–d*, the only carved designs found in the Maurya period are the cable patterns of nos. 27 and 28 and the hooked triangles of no. 22; and the only one from the Śaka-Parthian city in Sirkap (first century A.D.) is the overlapping scale pattern of no. 30. The remaining bangles come from Sirsukh, the Dharmarājikā, Jaṇḍiāl, and Mohṛā Morādu, and are mainly referable to the fourth and fifth centuries A.D. The motifs used in the decoration of these later examples include the file-edge (nos. 23, 24), cable (no. 29), wave (no. 32), beading (no. 33), bead and reel (no. 34), heart and chevron (no. 39), conventionalised bird and bird's head (nos. 36–8, 40), snake head (no. 35), and conch shell (no. 31). In all these examples the design is carved in low relief on the outer face. In another class, of which only one specimen (no. 41) has survived, the design is sunk in the surface, with the intention, no doubt, of filling the depressions with coloured inlay.

[1] The species of Erosaria were formerly included in the genus Cypraea.

[2] *Memoirs of the Arch. Survey of India*, no. 65, pp. 19–20 and Pl. VIII.

[3] The four specimens ornamented with a simple incised cross are not included.

The best bit of shell-work yet unearthed at Taxila is the small portrait head in low relief (no. 42) which was found in a jar along with a number of coins and other articles referable to the middle of the first century A.D. Among the few other miscellaneous articles included in Class III are four small disks or roundels, which may have served as buttons, and a dipper or ladle, which is unique at Taxila but of a kind that had been common enough among the Indus people two or three thousand years earlier. Portrait head and other miscellaneous articles

CLASS I. *Uncut shells* (nos. 1–15)

1. Scallop shell of striking size and shape, identified by the Zoological Survey of India as a Japanese species, either *Pecten nobilis* Reeve or *Pecten crassicostatus* Sowerby, most probably the former. The route by which this interesting specimen found its way in the first century A.D. from the shores of the Pacific Ocean to Taxila was no doubt through Central Asia. First century A.D. Sk. '26–2,215/*a*; sq. 110·52'; stratum II. Cf. p. 168 (11) *supra*. (Pl. 202, *g*.)

2. *Xancus pyrum* (Linn.).[1] Length 5·62 in. A conch shell used especially in the manufacture of bangles. Bm. '20–1,515; sq. 31·34'; stratum III. (Pl. 202, *b*.)

3. *Murex* (*Chicoreus*) *anguliferus* (Lamk.). Length 7·12 in. Like the preceding example, this fine-looking shell may have served as a trumpet, but did not lend itself to the manufacture of bangles. Second century B.C. Sk. '29–2,711; sq. 46·88'; stratum V. (Pl. 202, *d*.)

4. *Arca* (*Anadara*) *granosa* (Linn.). Length 2·62 in. A mother-of-pearl bivalve. First century B.C. Sk. '19–452; sq. 62·112'; stratum IV. (Pls. 201, no. 29; 202, *e*.) This species occurs throughout the coastal waters of Arabia, India, Malay Archipelago, Japan, China and Australia.[2] It probably found its way to Taxila from the coast of Sind.

5. *Pinctada margaritifera* (Linn.).
   (*a*) Sk. '27–560; stratum II. One valve. Diam. 8·31 in. (Pl. 202, *c*.)
   (*b*) Sk. '933–51; stratum II. Similar; broken; length 5·4 in. (Pl. 202, *f*.)
   (*c*) Sk. '24–270; sq. 34·48'; stratum II. Similar; length 2·75 in.

This is the pearl-oyster of the Ceylon and Tuticorin Pearl Fisheries, but Col. Sewell tells me that the shells fished at the present time average about 3·0 in. in diameter.

6. *Lamellidens marginalis* (Lamk.). One valve. Diam. 3·87 in. Sk. '22–231; sq. 12·88'; stratum II. Cf. p. 196 *supra*. (Pl. 202, *i*.)

A fresh-water mollusc widely distributed in the rivers of India, Burma and Ceylon, and valued for its mother-of-pearl. Several specimens of it were found among the prehistoric remains at Mohenjo-daro. (*M.I.C.* II, p. 664.)

7. *Parreysia favidens* (Benson).
   (*a*) Sk. '29–423; sq. 46·87'; stratum III. Length 1·87 in. Cf. p. 193 *supra*. (Pl. 202, *j*.)
   (*b*) Bm. '30–28; stratum II. Length 1·4 in. (Pl. 202, *k*.)

Another freshwater mollusc widely distributed throughout Northern India, including the Indus river and Gangetic system. Also said to have been found in East Cachar, Sylhet and the Madras Presidency. Several specimens have been found at Mohenjo-daro. (*M.I.C. ibid*.)

8. *Cypraea arabica* (Linn.). Sk. '29–487; stratum II. Length 2·5 in. (Pl. 202, *i*.)

A common marine species widely distributed in the Persian Gulf, coasts of India, Ceylon, Burma, New Caledonia and Australia. One specimen was found at Mohenjo-daro. (*M.I.C.* II, p. 665.)

9. *Erosaria turdus* (Lamk.). Bm. '30–43; stratum II. Length 1·45 in. (Pl. 202, *n*.)

A large cowrie of light purple colour.

[1] Previously known as *Turbinella pyrum* (Linn.).
[2] *M.I.C.* p. 665.

STRATIGRAPHICAL CHART OF SHELL OBJECTS

Class	Bhiṛ Mound strata				Sirkap strata				Other sites[1]	Class
	IV 5th to 6th century B.C.	III 4th century B.C.	II Maurya	I Surface	VI–V Greek	IV Early Śaka	III–II Late Śaka-Parthian	I Surface		
I. Uncut shells (nos. 1–15)	—	2	7, *b*, 9–11, 13	—	3	4	1, 5, *a–c*, 6, 7, *a*, 8, 12, 14	—	15 from Dh.	I
II. Bangles (nos. 16–41)	—	—	16, 17, 21, *a–d*, 22, 27, 28	—	—	18	30	—	19, 23, 24, 26, 29, 31–3, 36, 37 from Dh. 20, 38 from Mm. 25, 34, 40 from Ss. 35, 39, 41 from Jl.	II
III. Miscellaneous objects (nos. 42–50)	—	—	—	50	—	—	42, 44, 46–9	—	43 from Mm. 45 from Dh.	III

[1] Dh. = Dharmarājikā; Jl. = Jaṇḍiāl; Mm. = Mohṛā Morādu; Ss. = Sirsukh.

TABLE SHOWING DISTRIBUTION OF SHELL OBJECTS IN SIRKAP

Block	Strata VI–V Greek	Stratum IV Early Śaka	Strata III–II Śaka-Parthian	Stratum I Surface
		East side of Main Street		
1	—	—	—	—
A	—	—	—	—
B	—	—	47	—
C	—	—	5, c, 12	—
D	—	—	—	—
E	—	18	—	—
F	—	—	14	—
G	—	—	1	—
H	—	—	—	—
I	—	—	—	—
J	—	—	—	—
K	—	—	30, 44	—
L	—	—	—	—
		West side of Main Street		
1′	—	—	6	—
A′	—	—	—	—
B′	—	—	—	—
C′	3	—	7, a	—
D′	—	4	42, 49	—
E′	—	—	—	—
F′	—	—	—	—
G′	—	—	—	—
H′	—	—	—	—
K′	—	—	—	—

Note. Objects found in spoil earth or trial trenches are not included in the above Table.

10. *Erosaria helvola* (Linn.). Bm. '30–882; stratum II. Length, 1·1 in. (Pl. 202, *o*.) Smaller than the preceding and of pale colour.

11. *Erosaria* (*Monetaria*) *annulus* (Linn.).
(*a*) Bm. '30–773; stratum II. Length 0·85 in. (Pl. 202, *s*.)
(*b*) Bm. '30–720; stratum II. Length 0·8 in. (Pl. 202, *r*.)

12. *Erosaria* (*Monetaria*) *moneta* (Linn.).
(*a*) Sk. '24–1,155; sq. 41·45′; stratum II. Length 0·7 in. (Pl. 202, *p*.)
(*b*) Sk. '24–82; sq. 41·51′; stratum II. Length 0·65 in. (Pl. 202, *q*.)

13. *Oliva irisans* (Lamk.). Bm. '24–267; stratum II. Length 1·2 in. (Pl. 202, *m*.)

14. *Engina mendicaria* (Linn.). Formerly known as *Pusiostoma mendicaria* (Linn.). Sk. '13–389; sq. 93·57′; stratum II. Cf. p. 166 *supra*.

15. *Pyrene flava* (Brug.). Dh. '17–51; 2 ft. below surface. Cf. p. 294 *supra*.

Class II. *Bangles* (nos. 16–41)

Type *a*. *Plain*.

16. Fragment of shell bangle, with outer face bevelled to sides. Length 2·5 in. Bm. '19–270; sq. 15·11′; stratum II. Cf. p. 109 *supra*. (Pl. 201, no. 4.)

17. Similar. Length 2·62 in. Bm. '21–437; sq. 23·60′; stratum II. Cf. p. 109. (Pl. 201, no. 5.)

18. Similar with plain outer face and ribbed sides. Length 2·5 in. Repaired with two copper rivets at ends. Sk. '14–1,077; sq. 72·65′; stratum IV. Cf. p. 135 *supra*. (Pl. 201, no. 6.)

19. Similar to preceding, with projecting flange on either edge of outer face. Length 2·12 in. For this type of flanged bangle in metal, cf. nos. 7–9 in 'Copper and Bronze', ch. 28. The depression between the flanges may have been intended for enamel. Dh. '16–361; G8; 1 ft. below surface. Cf. p. 294 *supra*. (Pl. 201, no. 8.)

20. Similar to preceding. Two fragments. Length 2 and 2·12 in. respectively. Mm. '15–2; mon.; 4 ft. below surface. Cf. p. 363 (20) *supra*. (Pl. 201, no. 25.)

Type *b*. *Decorated with simple incised designs.*

21, *a–d*. Four shell bangles bevelled on outer face and with a simple cross incised on each. Diam. 2·75 in. Bm. '21–467; sq. 33·12'; stratum II. Cf. p. 109 *supra*. (Pl. 201, no. 1.)

22. Fragment of shell bangle with repeat of hooked triangles incised. Length 1·75 in. Bm. '13–28; stratum II. Cf. p. 109 *supra*. (Pl. 201, no. 17.)

23. Similar, with file-edged outer rim and diamond pattern incised. Length 2·31 in. Dh. '16–726; mon. court A; 16 ft. below surface. Cf. p. 278 *supra*. (Pl. 201, no. 10.)

24. Similar. Length 1·87 in. Dh. '13–1,606; J (west); 2 ft. below surface. Cf. p. 294 *supra*. (Pl. 201, no. 11.)

25. Similar with two rows of alternating lines. Length 1·75 in. Ss. '15–50; Piṇḍorā; 3 ft. below surface. Cf. p. 220 *supra*. (Pl. 201, no. 23.)

26. Three fragments of shell bangle with chequered pattern incised. Length 1·5–2·37 in. Dh. '15–1,402; mon. court A; 10 ft. below surface. Cf. p. 278 *supra*. (Pl. 201, no. 13.)

Type *c*. *Decorated with designs in relief.*

27. Fragment of shell bangle with cable pattern in relief. Length 1·25 in. Bm. '21–467; sq. 38·12'; stratum II. Cf. p. 109 *supra*. (Pl. 201, no. 2.)

28. Similar, with cable pattern between borders. Length 2 in. Bm. '19–286; sq. 8·52'; stratum II. Cf. p. 109 *supra*. (Pl. 201, no. 3.)

29. Similar, but bolder modelling. Diam. 2·5 in. Dh. '16–72; T2; 3 ft. below surface. Cf. p. 247 *supra*. (Pl. 201, no. 12.)

30. Similar, with overlapping scale pattern in relief. Length 2·12 in. Fine hatching on both sides. Sk. '14–363; sq. 164·44'; stratum II. Cf. p. 177 *supra*. (Pl. 201, no. 7.)

31. Four fragments of shell bangle, one with conch shell in relief. Length 1·75–2·62 in. Dh. '15–1,557; mon. court A; 8 ft. below surface. Cf. p. 278 *supra*. (Pl. 201, no. 9.)

32. Fragment of shell bangle with crude wave pattern in relief. Length 2·12 in. Dh. '15–1,263; mon. court A; 4 ft. below surface. Cf. p. 278 *supra*. (Pl. 201, no. 14.)

33. Similar, with beading between borders. Length 2·5 in. Dh. '12–49; H; 7 ft. 10 in. below surface. Cf. p. 294 *supra*. (Pl. 201, no. 15.)

34. Similar, with rough bead-and-reel pattern in low relief. Length 2·5 in. Ss. '15–17; Piṇḍorā; 2 ft. below surface. Cf. p. 220 *supra*. (Pl. 201, no. 24.)

35. Similar with head of snake and three projecting bezels with countersunk depressions for inlay. Length 1·87 in. Jl. '12–2; Mound D. Cf. p. 229 *supra*. (Pl. 201, no. 16.)

36. Similar, with repeat of conventionalised bird carved in low relief. Diam. 2·5 in. Dh. '16–72; T2; 3 ft. below surface. Cf. p. 247 *supra*. (Pl. 201, no. 19.)

37. Similar. Length 1·87 in. Dh. '16–198; Q1; 2 ft. below surface. Cf. p. 294 *supra*. (Pl. 201, no. 20.)

38. Similar, with copper clamp joining broken pieces. Length 2·5 in. Mm. '15–2; mon.; 4 ft. below surface. Cf. p. 363 *supra*. (Pl. 201, no. 26.)

39. Similar, with repeat of heart pattern, chevrons and medallion. Traces of red paint. Length 1·62 in. Jl. '12–7; Mound D. Cf. p. 229 *supra*. (Pl. 201, no. 21.)

40. Similar, with repeat of conventionalised bird-head pattern in relief. Length 1·87 in. Ss. '15–38; Piṇḍorā; 6 ft. below surface. Cf. p. 220 *supra*. (Pl. 201, no. 22.)

Type *d*. *Inlaid with coloured stones or paste*. Cf. also no. 35 *supra*.

41. Fragment of shell bangle with 'dot and comma' pattern sunk in outer face for inlay. Length 1·62 in. Jl. '12–258; Mound C; 4 ft. below surface. Cf. p. 224 *supra*. (Pl. 201, no. 18.)

Class III. *Miscellaneous objects* (nos. 42–50)

42. Head of man in low relief. Height 1·42 in. He wears a moustache, whiskers and short beard. The eyes are large and wide open; the forehead wrinkled. The head, which is in profile, is a striking bit of work and no doubt a portrait. It was found inside a jar along with a number of other articles. Sk. '19–933/1; sq. 59·114′; stratum II. Cf. *A.S.R.* (1919), Pl. x, 27 and pp. 188–9 *supra*; Deposit F, no. 10. (Pl. 208, no. 51.)

43. Disk or roundel of shell with hole in centre. Diam. 1·25 in. Incised lines round edge on convex side. Mm. '15–207; cell 14; 8 ft. below surface. Cf. p. 363 (34) *supra*. (Pls. 201, no. 27; 202, *h*.)

44. Similar, with decoration of three sunk circles alternating with groups of smaller circles. Sunk beading round former and round edge of disk. Diam. 1·5 in. Sk. '14–321; sq. 163·45′; stratum II. Cf. p. 177 *supra*. (Pl. 203, *w*.)

45. Similar, with four small circles alternating with 'dot and comma' rosettes. Partly broken. Diam. 2·3 in. Dh. '31–17; mon. court A. Cf. p. 278 *supra*. (Pl. 203, *x*.)

46. Natural shell (fam. *pecten*) cut to a circle, with hole in centre. Diam. 4 in. Sk. '27; Trench D 39; stratum II. (Pl. 202, *a*.)

47. Rectangular piece of mother-of-pearl shell (? *Pinctada margaritifera*). Length 2·75 in. Sk. '24–270; sq. 34·48′; stratum II.

48. Dipper or ladle, made from a śank shell. Length 3·12 in. Sk. '29–981; stratum II. (Pl. 201, no. 28.)

49. Necklace consisting of thirty-three beads of mother-of-pearl, roughly fashioned. Each bead is pierced with two holes for threading. Sk. '29–1,241/12; sq. 62·113′; stratum III. Cf. p. 187 (24) *supra*. (Pl. 205, *f*.)

50. Numerous small seed and other pearls of irregular shapes and sizes. Bm. '12–20/11; stratum I. From same hoard as coins and jewellery described in ch. 3 (pp. 110–11). Cf. *A.S.R.* (1912), p. 41. (Pl. 205, *h*.)

Chapter 34. SEALS AND SEALINGS

BESIDES the engraved gems belonging to finger-rings, a considerable number of seals have been found at Taxila which were intended for practical use rather than ornament. A few of these were imports from Persia or the Graeco-Roman world, but the majority seem to have been made locally at Taxila, though the devices engraved on them are more often of Hellenistic than Indian origin. Oldest of them all is the Assyrian conical seal of onyx, no. 1, which dates from the seventh or sixth century B.C., albeit unearthed in a building of the first century A.D. Then come two classes of contemporary seals found almost exclusively in the Bhiṛ Mound and referable to the fourth and third centuries B.C., viz. pyramidal seals of stone, glass and copper (Class II, nos. 2–7) and scaraboid seals of stone and glass (Class III, nos. 8–13). The pyramid is particularly characteristic of the Maurya period, and some of the most beautiful pendants of banded agate and carnelian are cut to this shape. It should be noted, however, that in some specimens the pyramid tends to be roughly conical, and it is possible that the pyramidal type may have been evolved from the earlier conical type exemplified in no. 1, a pyramid being easier to fashion than a cone; but, however this may be, the character and crude workmanship of the engravings, executed without the help of the drill, leave virtually no room for doubt that they were a local product of Taxila. On the other hand, the scaraboid seals of Class III are characteristically Persian, though some of them exhibit strong Hellenistic influence, and there can be no question that they were either imported from that country or executed locally in imitation of Persian or Perso-Greek prototypes. In either case they afford significant testimony of Achaemenid influence in this part of India. Of the six seals of this type recovered at Taxila, four were found in the Bhiṛ Mound in strata of the fourth and third centuries B.C., the fifth (no. 12) came from the debris of the stūpa Mound B at Jaṇḍiāl, and the sixth (no. 13) from the Śaka-Parthian city of Sirkap. All six, however, are most probably to be referred to the Achaemenid or Maurya period, the last two being merely survivals.[1] Let it be added that the flat oval seal of nicolo, no. 14, has been included in Class III (*b*) only for the reason that, like the scaraboids, it was intended to be either fixed on a metal swivel or suspended from a cord. It is unique of its kind at Taxila and its material (nicolo) and the quality of its engraving indicate that it was a foreign import from the West.

Class I

Classes II and III

Class IV

Class IV, which is the largest, comprises square, oval and round seals with one or more small rings or a pierced handle at the back. The majority are of copper or bronze, but one is of silver, three of stone, three of glass, two of shell and one of terra-cotta. To what the rings or pierced bosses at the back were attached is

[1] No. 12, from the stūpa Mound B at Jaṇḍiāl, may have been included in a relic deposit going back to Maurya times.

uncertain, but the fact that no specimen has yet been found with anything attached to it suggests that they were used with a cord rather than a metal swivel, since the latter would have been much more likely to survive than the former. With one exception (no. 28, *a*), which may be a stray, all come from Sirkap, viz. three from the surface or spoil earth, sixteen from strata II and III, and three from stratum IV. None of the metal specimens of this class appear to be anterior to the Śaka-Parthian period.

Classes V and VI

The two remaining specimens in this collection—a square cylinder seal of copper with engravings on its four faces (no. 37) and a large square tablet of stone with engravings on the front and back (no. 38) are both of the early Medieval Age (fourth to fifth centuries A.D.) and unique of their kind at Taxila.

Class VII

Finally, there are five sealings (nos. 39–43), i.e. impressions of seals stamped on lumps of clay, which have been accidentally burnt and so converted into terracotta. Two of them are from the lower settlements on the Bhir Mound and are interesting as showing that the lion was a favourite device at Taxila as early as the fifth to fourth centuries B.C. The others call for no particular comment.

Devices, technique and style

The devices on these seals and the style and technique of the engravings are distinctive of their class and age. In the Indian pyramidal seals of Class II the design was roughly executed with a graving tool and, apart from the crude human figures (nos. 3, 5), the subjects were of a religious or quasi-religious order, as they were to a large extent on the punch-marked coins. Thus no. 2 exhibits the ritual of a sword cult; no. 4, six *nandipadas*, a symbol which was afterwards to be widely adopted by the Buddhists; and no. 7, the Lotus Tree of Life and Fortune, which also figures prominently on Buddhist monuments of the Early School.

Persian scaraboids

On the Persian scaraboids of Class III the engraving is distinguished, as already remarked, by the free use of the drill. In some of the inferior specimens the marks made by this implement are peculiarly obtrusive, the design being made up, as it were, of a number of sunk circlets of varying diameter (e.g. in no. 10). In better specimens (e.g. nos. 9, 11, 12) the circlets are still visible, but the work has been well finished off with a graving tool. Indeed, the high quality of the engraving in the three examples cited, particularly in the ram's head (no. 11), which is superior even to the ivory ram's head of Pl. 208, no. 52, and in the spirited racing horse (no. 12) point definitely to Greek craftsmanship.[1] The devices, too, which characterise these scaraboids are of quite a different order from those found on contemporary pyramidal seals; for they consist exclusively of fabulous or real animals such as the winged stag of no. 8, the winged horse and bull of no. 10, the lion of no. 9, the ram's head of no. 11, and the horse of no. 12; and it is noteworthy that from this time onwards these animal motifs continued for some centuries to figure prominently on seals and finger-rings in this part of India.

Examples of Greek craftsmanship

In the later (Śaka-Parthian) seals of Class IV the influence of Hellenistic art becomes increasingly apparent. Two of these later seals, indeed, are purely

[1] The scaraboid seal, evolved originally, as its name implies, from the Egyptian scarab, was as familiar in Greece as in Persia.

Graeco-Roman seals

Graeco-Roman and in all probability were imported from the Mediterranean area. These are the nicolo seal no. 14, with a young winged Eros chasing a bird, and the carnelian seal no. 30, with a love scene between Eros and Psyche. Others that, in spite of their inferior workmanship, may also have been imported are the nine oval intaglios, nos. 71, *a–i*, of the finger-rings and gems (Pl. 207, no. 10); for it must be emphasised that bad engraving could be done just as much in Greece and Italy as in India. It is true, of course, that the general level of seal and gem engraving was far lower in the North-West than it was in Greece and Italy, but, on the other hand, countless numbers of small gems were turned out in the latter countries which were far inferior, for example, to the seal no. 26 (Pl. 208, no. 56) or the finger-ring no. 55 (Pl. 208, no. 46), both of which are proved by their inscriptions, and the former by its subject also, to have been engraved in India.

Influence of contemporary coins

And here it should be said that the seal and gem engravings of this Śaka-Parthian period was to no small extent influenced, in the matter of both devices and legends, by contemporary coins; indeed, it appears not unlikely that in some cases the same hands may have been responsible for both coins and seals. Thus, to take only the most obvious examples, the Indian humped bull of seal no. 19 and ring no. 53 has its counterpart on coins of Heliocles, Diomedes, Apollodotus, Azes and other rulers.[1] The standing Poseidon on ring no. 55 appears again on coins of Azes I,[2] and the same god trampling on a river-god on seal no. 28 has a close parallel on certain pieces of Maues and Azes,[3] while the winged Nike holding a wreath and fillet on seal no. 42 and ring no. 70 is a familiar type on issues of Eucratides, Strato I, Menander, Philoxenus, Maues and Azes[4] and later rulers.

Seal no. 37

It remains to say a few words about the square cylinder seal of copper, no. 37. It is the only seal of its kind found during my excavations, but I have seen a few others in the hands of dealers at Rāwalpindi. It was found in the Buddhist monastery at Mohṛā Morādu and, like the tablet seal no. 38, was no doubt used by one of the fraternity. This being so, it may seem strange to find such flagrantly erotic devices engraved on three of the four faces. The explanation usually advanced is that they had a talismanic value and that the Buddhist was as superstitious about such things as the Hindu. This is doubtless true, but it is not the whole story. Amatory scenes of a more elaborate kind figured prominently among the Buddhist reliefs of the Early Mālwā School at Sāñchī. They were part and parcel of the secular art of the day, and when the Buddhist Church made use of that art for its own purpose, it accepted them, seemingly without demur, along with many other scenes of a genre and mundane character. They were rigidly excluded from the Buddhist art of Gandhāra, which was largely controlled by Hellenistic tradition and in every way more truly ecclesiastic than the early art of Mālwā; but they paved the way for the many erotic and alluring figures to be seen among the

[1] Cf. *B.M. Cat. of Greek and Scythic Coins*, Pls. VII, 8; VIII, 14; IX, 8, 9, 13; XII, 8; XIII, 2, 10, XVI, 4; XVII, 6, etc.

[2] *Ibid.* Pl. XVIII, 1.

[3] *Ibid.* Pls. XVII, 2 and XIX, 10.

[4] *Ibid.* Pls. VI, 7; XI, 4, 5, 13; XII, 1; XIII, 9; XVI, 2, 7, 8; XVIII, 12.

sculptures of the Mathurā School, and during the medieval period they became so well established that in the ninth century groups of erotic figures can be seen adorning the doorways of Buddhist shrines which are indistinguishable from contemporary Hindu carvings of a kindred nature.

CLASS I. *Conical stone seal from Assyria* (no. 1)

1. The only seal of this class is one of pale onyx, 1·12 in. high, which dates from the seventh or sixth century B.C., and is of Assyrian manufacture. The engraving on the base portrays a worshipper in Assyrian costume standing in front of a winged human-headed Scorpion-god. It was found on the Mahal site in Sirkap, in a building of the first century A.D. Ml. '20–91; sq. 63·84'; 2 ft. below surface. Cf. p. 215 *supra*; *A.S.R.* (1923–4), p. 66 and Pl. xxvii, 6 (Pl. 207, no. 7.)

CLASS II. *Pyramidal seals of stone, glass and copper, of fourth and third centuries* B.C. (nos. 2–7). Cf. vol. I, pp. 105, 109

2. Pyramidal seal of slate. Height 0·9 in. On base, man standing in front of three swords set trident-like on stand. He is clad in long tunic belted at the waist and holds a spherical object, possibly a vessel for oil or lustral water, above the point of one sword. Evidently a religious ceremony is in progress and one is reminded of the remarkable copper swords from Fatehgarh in the United Provinces, now in the Imperial Museum, Calcutta, which, as their excessive weight and peculiar double-spiked handles indicate, must have been intended not for practical use, but for some ceremonial purpose such as is here delineated. Bm. '19–270; sq. 34·47'; stratum III. Cf. *A.S.R.* (1919), p. 23 and Pl. xi, 5, 5*a*. (Pl. 207, no. 8.)

3. Pyramidal seal of slate. Size of base 0·45 × 0·18 in. On base, man standing with legs apart and arms outstretched. Bm. '19–20; stratum III. Cf. *A.S.R.* (1919), p. 23 and Pl. xi, 3 and 3, *a*.

4. Pyramidal seal of greenish beryl-like glass engraved on base with six *nandipada* symbols. Size of base 0·48 × 0·48 in. Bm. '19–270; sq. 34·47'; stratum III. (Pl. 207, no. 21.)

5. Similar to preceding, with two figures standing side by side. Size of base 0·5 × 0·5 in. Bm. '19–151; sq. 12·30'; stratum II. (Pl. 207, no. 23.)

6. Similar, with the figure of a man standing to right; to left, and separated from him by staff, a circle and *nandipada* symbol. Size of base 0·31 × 0·31 in. Bm. '20–1,416; sq. 45·67'; stratum II. Cf. *A.S.R.* (1920–1), p. 20 and Pl. xvii, 2. (Pl. 207, no. 22.)

7. Pyramidal seal of copper engraved on base with conventional 'lotus-tree of life'. Size of base 0·58 × 0·48 in. Bm. '19–20; stratum II. Cf. *A.S.R.* (1919–20), p. 23 and Pl. xi, 6 and 6, *a*.

CLASS III. *Seals of stone and glass intended to be fixed on swivel or suspended from cord* (nos. 8–14)

Type *a*. *Scaraboid seals, mainly of fourth and third centuries* B.C. Cf. vol. I, pp. 105, 109, 111.

8. Scaraboid seal of buff-coloured indurated clay, engraved on face with winged stag walking to left. The graving is clumsily executed, mainly with the drill in the Achaemenid fashion. Hole through longer axis for swivel or cord. Length 0·62 in. Bm. '19–542; sq. 11·34'; stratum III. Cf. *A.S.R.* (1919), p. 23 and Pl. xi, 2. (Pl. 207, no. 5.)

9. Scaraboid seal of black agate, engraved on face with lion. In field, above lion's back, is a *nandipada* symbol. Drill freely used in graving, but execution superior to that of no. 8. Hole through longer axis. Length 0·8 in. Bm. '23–105; sq. 25·61'; stratum II. (Pl. 207, no. 2.)

STRATIGRAPHICAL CHART OF SEALS AND SEALINGS

Class	Bhir Mound strata				Sirkap strata				Other sites[1]	Class
	IV 5th to 6th century B.C.	III 4th century B.C.	II Maurya	I Surface	VI–V Greek	IV Early Śaka	III–II Late Śaka-Parthian	I Surface		
I. Conical stone seal from Assyria (no. 1)	—	—	—	—	—	—	—	—	1 from Ml.	I
II. Pyramidal seals of stone, glass and copper (nos. 2–7)	—	2–4	5–7	—	—	—	—	—	—	II
III. Seals of stone and glass intended to be fixed on swivel or suspended from cord (nos. 8–14)	—	8	9, 10	11	—	—	13	—	12 from Jl. 14 from Bj.	III
IV. Flat, square, oval, and round signets of metal, glass, stone, shell and terra-cotta, provided with rings or pierced protuberances at back (nos. 15–36)	—	—	—	28, *a*	—	16, 31, 35	15, 17–19, 21, 22, 24–6, 28–30, 32, 33, 36	23, 27	26, *a* from Gr.	IV
V. Square cylinder seal (no. 37)	—	—	—	—	—	—	—	—	37 from Mm.	V
VI. Large square tablet seal engraved on both faces (no. 38)	—	—	—	—	—	—	—	—	38 from Mm.	VI
VII. Terra-cotta sealings (nos. 39–43)	39, 40	—	41	—	—	—	42	—	43 from Bādalpur	VII

[1] Bj. = Bajrān; B. = Bhamāla; Gr. = Giri; Jl. = Jaṇḍiāl; Ml. = Mahal; Mm. = Mohṛā Morādu.

TABLE SHOWING DISTRIBUTION OF SEALS AND SEALINGS IN SIRKAP

Block	Strata VI–V Greek	Stratum IV Early Śaka	Strata III–II Śaka-Parthian	Stratum I Surface
		East side of Main Street		
1	—	—	25	—
A	—	—	—	—
B	—	—	30	—
C	—	31	15, 33	—
D	—	—	—	—
E	—	—	22	—
F	—	35	—	—
G	—	—	17, 42	—
H	—	—		
I	—	—	24	—
J	—	—	18	—
K	—	—	28	—
L	—	—	36	—
		West side of Main Street		
1′	—	—	—	—
A′	—	—	—	23
B′	—	—	29	—
C′	—	16	26	—
D′	—	—	—	—
E′	—	—	13, 19, 21	—
F′	—	—	—	27
G′	—	—	—	—
H′	—	—	—	—
K′	—	—	—	—
Main Street	—	—	32	—

Note. Objects found in trial trenches or spoil earth are not included in the above Table.

10. Similar but of chalcedony. Length 1 in. On face, two winged animals—probably a horse and bull—side by side. Technique as in foregoing specimens, but execution very coarse and crude. Bm. '20–320; sq. 37·29′; stratum II. Cf. *A.S.R.* (1920), p. 20 and Pl. XVII, 1. (Pl. 207, no. 3.)

11. Similar but of siliceous slate (with calcite spherules). Length 0·95 in. The device on the face is that of a ram, which has been well drawn and finely executed, the drill being only sparingly used. Bm. '12–20/14; stratum I. From the same hoard as 'Jewellery', nos. 71, 72, 80, 82, 83, 88, 166 and 204–10; 'Copper and Bronze', no. 7; 'Pottery', no. 173. For further details of hoard, see vol. 1, p. 111. (Pl. 207, no. 1.)

12. Similar, of chalcedony, with horse racing to left. Hole through longer axis. A most spirited bit of Hellenistic work. Length 0·7 in. Jl. '12–31; stūpa Mound B; 13 ft. below surface. Cf. p. 356 *supra*. (Pl. 207, no. 4.)

13. Similar, of black glass, engraved with winged animal crudely executed. Length 1 in. Sk. '27–965; Block E′; sq. 73·81′; stratum II. Cf. p. 185 *supra*.

Type *b*. *Flat oval stone seal intended for swivel or cord.* Of later date than preceding.

14. Flat oval seal of nicolo, with engraving of winged cupid running after bird. Pierced lengthwise for swivel or cord. Length 0·72 in. Bj. '24–16; room 6; 3 ft. below surface. This

seal, which is unique of its kind at Taxila, dates probably from the first or second century A.D. Cf. p. 204 *supra*. (Pl. 207, no. 6.)

CLASS IV. *Flat, square, oval and round signets of metal, glass, stone, shell and terracotta, provided with rings or pierced protuberances at back* (nos. 15–36). Cf. vol. I, p. 204

Metal:

15. Oval seal of silver, with engraving of Brahmani duck holding lotus in his beak. Behind duck, *nandipada* symbol. Above, legend in Kharoshṭhī: *Damarachitasa* = 'Of Dharmarakshitā'. At back of seal, four small rings for attachment. Length 0·67 in. First century A.D. Sk. '13–602; Block C; sq. 49·64'; stratum II. Cf. p. 148 *supra*. (Pl. 207, no. 12.)

16. Oval seal of copper, with engraving of winged horse prancing. At back, a ring for attachment. Diam. 0·5 in. Sk. '29–1,537; Block C'; sq. 43·88'; stratum IV. Cf. p. 134 *supra*. (Pl. 208, no. 39.)

17. Round seal of copper, with figure of fabulous animal running and looking backwards. Round part of rim, scalloped device. At back, ring for attachment. Diam. 1·25 in. Sk. '26–2,537; Block G; sq. 106–50'; stratum III. Cf. p. 169 *supra*; *A.S.R.* (1926), Pl. XXVIII, 8 and p. 118, no. 7. (Pl. 208, no. 40.)

18. Oval seal of copper engraved with the figure of winged horse (Pegasus) running to right. On back, two small rings. Longer axis 0·62 in. Sk. '26–1,476; Block J; sq. 145·48'; stratum II. Cf. p. 171 *supra*; *A.S.R.* (1926), p. 117, no. 4, and Pl. XXVIII, 5. (Pls. 207, no. 37; 208, no. 38.)

19. Square seal of copper engraved with the figure of a humped bull standing. On back, small ring for attachment. Size 0·43 × 0·43 in. Sk. '28–951; Block E'; sq. 80·96'; stratum II. Cf. p. 185 *supra*. (Pl. 208, no. 43.)

20. Round copper seal engraved with two cocks face to face on either side of a *triratna* symbol. Diam. 0·62 in. Sk. '20–149; spoil earth. (Pl. 208, no. 41.)

21. Square seal of copper, 0·5 × 0·5 in. On face, in centre, swastika device with line of defaced Kharoshṭhī lettering on either side. The ring at the back is missing and the legend is too indistinct to be deciphered. Sk. '27–529; Block E'; sq. 76·84'; stratum III. Cf. p. 185 *supra*; *A.S.R.* (1927–8), p. 63, no. 2. (Pl. 208, no. 55.)

22. Oval seal of copper, with legend in Kharoshṭhī, which may read *Jadilasa*, but the engraving is careless and clumsy and the first letter looks rather like a *sa*, which the engraver has omitted to reverse in the original. If so, the legend would read *Sadilasa* and the name may be the same as that on the gold ring no. 14 (p. 643), where the second letter is uncertain. Longer axis 0·8 in. Sk. '13–1,301; Block E; sq. 72·51'; stratum II. Cf. *C.I.I.* II, p. 101, no. 7 and Pl. XX, 7; and for the gold ring, *ibid.* no. 1. The reading *Denipasa* given in the *Corpus* hardly seems possible. Cf. p. 162 (18) *supra*. (Pl. 208, no. 48.)

23. Circular seal of copper, diam. 0·75 in., with ring at back for attachment. On face, engraving of a long-tailed monkey, standing upright, with Kharoshṭhī legend, the reading of which is uncertain. The editor of the *Corpus* suggests with the utmost reserve: *Yolamoṇalatra-(putra)sa Budhalatrasa* = 'Of Buddhalatra, the son of Yola Monolatra'. Sk. '21–1; Block A'; sq. 15·78'; stratum I. Cf. *C.I.I.* II, p. 101, no. 5 and Pl. XX, 5. (Pl. 208, no. 49.)

24. Square seal of copper, 0·43 × 0·43 in., with four rings on back for attachment. Engraved on face, figure of a Brāhman ascetic seated inside hut, with right hand extended over fire in front of him. Kharoshṭhī legend at right edge: *Bramadatasa* = 'Of Brahmadatta'. Sk. '26–889; Block I; sq. 139·56'; stratum II. Cf. p. 171 *supra*; *A.S.R.* (1926), p. 118, no. 6, and Pl. XXVIII, 7; *C.I.I. ibid.* no. 8 and Pl. XX, 8. And for subject, cf. 'Stone Sculptures', ch. 36, no. 134 = Pl. 222, no. 134. (Pl. 208, no. 50.)

25. Square seal of copper, 0·62 × 0·62 in., with ring on back. Engraved on its face is a ***nandipada*** symbol, with Kharoshṭhī legend above: ***Arajhaṁdasa*** = 'Of Arajhanda'. Sk. '26–4,263; Block 1; sq. 13·45′; stratum II. Cf. p. 142 ***supra***; *A.S.R.* (1926), p. 117, no. 5 and Pl. XXVIII, 6; *C.I.I. ibid.* no. 9. (Pl. 208, no. 54.)

26. Oval seal of copper, 1·35 × 1·25 in., with two rings on back. On face, figure of Śiva in centre, holding trident in left hand and club in right. In field to right, ***nandipada*** symbol and Kharoshṭhī legend: *Sivarachitasa* = 'Of Śivarakshita'. To left, same legend repeated in Brāhmī. Sk. '14–526; Block C′; sq. 48·78′; stratum II. Cf. p. 193 *supra*; *A.S.R.* (1914), Pl. XXIV, 51; *C.I.I. ibid.* no. 11. (Pl. 208, no. 56.)

26, *a*. Similar, with ring on back. Length 0·87 in. On face, Brāhmī legend of *c.* fifth century A.D. *(Kha)ru(pa)dasya*. Gr. '27–371 D.

27. Similar, with marks for four rings on back. Diam. 1 in. In centre, star with smaller star on either side. Above and beneath, two lines of lettering, one (*a*) in Kharoshṭhī, the other (*b*) in Brāhmī: (*a*) *Sihasa(madri)na putasa Virabahusa*; (*b*) *Sihasa madrina putrasa Vīrabāhusa* = 'Of Vīrabāhu, the son of Siṁha, the minister'. Sk. '28–1,577; Block F′; sq. 87·91′; stratum I. Cf. p. 182 *supra*; *A.S.R.* (1928–9), p. 57, no. 59 and Pl. XX, 2. (Pl. 208, no. 57.)

28. Similar, of bronze, with two rings on back, one of which is missing. Size 0·7 × 0·6 in. In centre, Poseidon standing with one leg on the prow of a vessel, the other on a ***naga*** swimming in the water. On his outstretched right hand is a bird (? Brahmani duck). Kharoshṭhī legend on either side, which according to Konow (*C.I.I. ibid.* p. 102) reads: ***Baḍusa Viśpamitrasa*** = 'Of the young Brāhman Viśvamitra', but the reading is doubtful at the best. The first letter certainly appears to be *bi* rather than *ba*. Sk. '14–372; Block K; sq. 161·46′; stratum II. Cf. p. 177 ***supra***; *A.S.R.* (1914), Pl. XXIV, 50 and *C.I.I.* II, Pl. XX, 12. For the motif of Poseidon trampling on a river deity, etc., see ch. II, p. 47; R.U.C. nos. 114, 117, 143 and 144. (Pl. 207, no. 17.)

Stone:

28, *a*. Stone seal, with broken handle at back, 0·43 in. square. Device of trident and cross. Bm. '12–20; stratum I. From same findspot as no. 11 *supra* (*q.v.*). Cf. *A.S.R.* (1912), p. 41, no. 10.

29. Circular seal of fine slate, with shallow pierced boss at back. Diam. 0·8 in. On face, sacrificial implement (?) with swastika on one side and undeciphered inscription in Brāhmī on the other. Sk. '29–237; Block B′; sq. 39·94′; stratum III. Cf. p. 194 ***supra***; *A.S.R.* (1929–30), no. 180. (Pl. 207, no. 13.)

30. Oval seal of carnelian set in heavy gold frame, with four rings on back. Length 1·37 in. On face, figures of Eros and Psyche with a tiny Eros behind the latter. For the motif, see 'Jewellery', ch. 30, no. 98, and the references there given. Sk. '24–683/5; Block B; sq. 31·47′; stratum II. Cf. p. 147, no. 5 ***supra***; *A.S.R.* (1924–5), Pl. XI, 1. (Pl. 207, nos. 11 and 11, *a*.)

Glass:

31. Circular seal of green glass, with two rings on back. Diam. 0·62 in. On face, rough engraving of lion standing to left. Sk. '24–892; Block C; sq. 46·53′; stratum IV. Cf. p. 149 (7) ***supra***; *A.S.R.* (1924), Pl. XI, 7. (Pl. 207, no. 34.)

32. Oval seal of milky white glass, with two rings on back. Length 0·54 in. Engraving of lion, now much blurred. Sk. '14–610; Main Street; sq. 54·71′; stratum III. (Pl. 207, no. 20.)

33. Similar, with winged centaur running to right. Length 0·7 in. Sk. '13–249; Block C; sq. 51·55′; stratum III. Cf. p. 148 ***supra***. (Pl. 207, no. 14.)

Shell:

34. Rectangular seal of shell, with pierced boss on back. Size 0·43 × 0·4 in. On face, swastika symbol and legend of four letters in early Brāhmī: *Śabhavanā*. Sk. '17–561; spoil earth. (Pl. 207, no. 25.)

35. Oval seal of shell, with standing human figure holding fillet in right hand. Length 0·62 in. Sk. '12–1,024; Block F; sq. 93·67'; stratum IV. Cf. p. 166 *supra*. (Pl. 207, nos. 19, 24.)

Terra-cotta:

36. Circular seal of terra-cotta. Diam. 1 in. On face, Kharoshṭhī legend: *Atavihare Mudrasatasa* = 'Of Mudrasata in his own *vihāra*'. Sk. '26–132; Block L; sq. 192–15'; stratum II. Cf. p. 178 *supra*; *C.I.I.* II, p. 101, no. 10 and Pl. XX, 10. (Pl. 207, no. 32.)

CLASS V. *Square cylinder seal* (no. 37)

37. Square cylinder seal of bronze, with hole through centre. Length 0·62 in. Engraved on the four faces are the following devices: (*a*) male figure seated cross-legged in niche; (*b*) standing female figure wearing long tunic and cap and holding uncertain object in right hand and serpent (?) in left; (*c*) and (*d*) erotic scenes. Mohṛā Morādu; mon. cell 3; floor-level. Fourth to fifth century A.D. The erotic devices on what appears to have been a Buddhist monastic seal are noteworthy. Such devices became common in the medieval period. Cf. p. 363 (35) *supra*; *A.S.R.* (1915–16), p. 30, no. 15 and Pl. XXIII, *c*. (Pl. 208, no. 44.)

CLASS VI. *Large square tablet seal engraved on both faces* (no. 38)

38. Square tablet seal of slate-like indurated clay, with deep groove sunk in rim all round and hole pierced from side to side, for attachment. Size 2·75 × 2·75 in. and 0·75 in. thick. Engraved on both faces. On obverse, conventional *garuḍa* or cock with lotus stalk in beak and trampling on snake. In front of it, a coiled snake with raised hood; behind, a lion rampant. In exergue, inscription in Gupta Brāhmī characters of fifth century A.D.: *Hariśchandrasya* = 'Of Hariśchandra'. On reverse, figure of Wind-god (?) blowing horn. In field, to left, foliage; to right, figure with offering (?) in left hand and uncertain object in right. Below, two *gaṇas* in violent motion, one holding water-pot. Mm. '15–E 60; cell 3, floor-level. Cf. p. 363 (36) *supra*; *A.S.R.* (1915–16), p. 30, no. 14, and Pl. XXIII, *e* and *f*. (Pl. 208, no. 59.)

CLASS VII. *Terra-cotta sealings* (nos. 39–43). Cf. vol. I, pp. 102, 109

39. Two sealings on lump of terra-cotta: (*a*) from an oval seal, showing a lion running to left; (*b*) from a round seal, showing a sitting bird. Length 0·68 in. Bm. '24–799; sq. 24·58'; stratum IV. *A.S.R.* (1924–5), p. 48 and Pl. XI, 12. (Pl. 207, no. 28.)

40. Lump of terra-cotta, with five impressions of lion to right. Length 1 in. Bm. '21–1,385; sq. 46·127'; stratum IV. (Pl. 207, no. 30.)

41. Terra-cotta sealing, stamped on both sides with figure of humped bull standing to left, and *nandipada* symbol above hump. Diam. 0·62 in. Bm. '20–598; sq. 34·27'; stratum II. *A.S.R.* (1920), Pl. XVII, 3. (Pl. 207, no. 26.)

42. Similar, with a standing winged Nike holding wreath. Length 0·98 in. Sk. '12–470; Block G; sq. 115·67'; stratum III. Cf. p. 169 *supra*. (Pl. 207, no. 29.)

43. Similar, with a kneeling bearded figure and ducks, stag and serpent in front. Diam. 1·37 in. Bādalpur '16–17; mon. wall; 7 ft. 10 in. below surface. (Pl. 207, no. 31.)

Chapter 35. GLASS

Use of faience, glazed pottery and vitreous paste in prehistoric times

When glass was first introduced in India we do not know. In Egypt it was being manufactured in the pre-dynastic period; in Mesopotamia before the IIIrd Dynasty of Ur (*c.* 2300 B.C.); and in Crete before 2000 B.C. Among the Indus peoples of the fourth and third millennia B.C. true glass does not seem to have been known, but other vitreous substances have been found among the ruins of Mohenjo-daro and Harappā which are so closely allied to glass that it seems hardly possible that the discovery of glass could have been long delayed. These other substances are faience, glazed pottery and so-called vitreous paste. The first of the three was in use in Mesopotamia and Egypt as early as the fourth millennium B.C. and perhaps even earlier; and in India its manufacture may well go back to a more remote age than that represented at Mohenjo-daro and Harappā, but in view of the great popularity of faience-ware in the West, it seems more likely to have been invented there than in India. The glazing of pottery, on the other hand, is a craft which appears to have been practised for the first time on the banks of the Indus.[1] At any rate no examples of it have come to light in Mesopotamia before about 1000 B.C., nor in Egypt before Roman times,[2] though in Nubia there is said to be evidence of a glazed ware as early as the XIIth Dynasty.[3] As to the third substance—the so-called vitreous paste, which is also found in the prehistoric cities of the Indus[4]—Beck considers it to be an unusually hard form of faience, in which the quartz grains are extremely small, and the material has been fused until the air bubbles have become circular. Its appearance is somewhat similar to that of opaque glass, but its granular nature proves that it was not a true glass.[5] Nothing like it has come to light in Mesopotamia, but a somewhat similar substance has been found in Egypt dating from the XXVIth Dynasty, and in Crete dating from the Middle Minoan III period.[6] The Egyptian paste is described by Flinders Petrie as 'a beautiful hard stoneware, apparently made by mixing some glaze with the body, enough to fuse it into a solid mass throughout, and with a fine, smooth surface without any face glaze'.[7] This description applies equally well to the Indian paste, which is tougher and more compact than the ordinary faience and susceptible, therefore, of greater definition when moulded or carved.[8]

Date of introduction of true glass into India

In India, true glass makes its first appearance at Taxila in the earliest stratum of the Bhir Mound, i.e. about the fifth century B.C. That does not mean, however, that it was unknown in India prior to that date. So far as we are aware, Taxila

[1] Cf. Mackay in *M.I.C.* II, pp. 577–8 and 581–2.
[2] Lucas, *Ancient Egyptian Materials*, p. 58.
[3] *Ancient Egypt* (1916), pt. II, p. 87.
[4] Vats, *Excavations at Harappā*, p. 404.
[5] *M.I.C.* II, p. 582.
[6] Evans, *Palace of Minos*, I, pp. 489–90.
[7] *Arts and Crafts of Ancient Egypt*, p. 116.
[8] *M.I.C. ibid.*

itself was not founded until the sixth or fifth century B.C., and it can therefore yield no information as to what happened during the many centuries that elapsed between the eclipse of the Indus civilisation and its own foundation. The art of glass-making may have been discovered or introduced at any time in the interval.

Character of glass objects

The objects made of glass that have been unearthed at Taxila comprise beads, bangles, small vessels, tiles and a few miscellaneous articles. Some general remarks on them will be found in vol. 1 at pp. 102, 109, 135 and 297. The beads of glass are dealt with in chapter 37, along with those made of other materials, and it is unnecessary to say more about them here.

GLASS BANGLES

Out of 232 specimens of bangles, 38 come from the Bhiṛ Mound and 194 from Sirkap; and of the Bhiṛ Mound specimens 17 are referable to the Maurya and 21 to the pre-Maurya period, 3 coming from the earliest stratum of the fifth century B.C. and 18 from the intervening one. Of the Sirkap bangles, 5 date from the second century B.C., 15 from the first century B.C., and 174 from the first century A.D. These figures are not, of course, to be taken as an index to the relative popularity of the bangle at different periods, since the area of ground excavated, both in the Bhiṛ Mound and in Sirkap, was much larger near the surface than lower down.

For bangles, the favourite colour from first to last was blue, and of this there were several shades from pale to dark, some produced by metallic copper, others by cobalt. In a few examples from the Bhiṛ Mound and Sirkap there is a narrow strip of white on the blue ground, running like a midrib round the outer face. Bangles of sea-green glass make their appearance in the Bhiṛ Mound about the fourth century B.C. and are not uncommon down to the beginning of the second century B.C., but rare after that. Other colours are amber, violet, black and yellow. Amber, violet and yellow are represented only by single examples from Sirkap dating from the first century A.D. It is not unlikely that the yellow specimen may be a medieval or modern stray, but the glass, which is opaque sulphur, resembles that of the Sirkap beads, of which there are large numbers. Black glass, which looks very like obsidian, seems to have been manufactured at Taxila from a very early period, and there are several examples of black bangles which have been found in the Bhiṛ Mound, Sirkap and later sites. The specific gravity of the blue, green, black and yellow glass ranges from 2·3 to 2·6, showing that there was little or no lead used in their composition.[1]

As to shapes, the commonest type from Sirkap is a circle averaging from 1·2 to 2·35 in. in diameter, about 0·35 in. in width, and 0·2 in. in thickness; it is flat on the inside and either convex or relieved by a midrib on the outside. Another not uncommon type is twisted like a cable. Both types occur in all the Sirkap strata from the second century B.C. to the first century A.D. In one specimen of blue

[1] Beck, *Beads from Taxila* (*A.S.I.* Memoir no. 65), p. 21. The yellow and yellow and black bangles described by Mr Beck (p. 29) are probably strays of recent date.

glass, of the first century A.D., the convex outer side is relieved by pairs of dots impressed in the surface. In another specimen there is a single line of raised dots, resembling nail heads.

Among the earlier Bhir Mound examples the plano-convex form is also found but the section is usually rounder and smaller; in other words, it is narrower in proportion to its thickness. One specimen, however, from the Bhir Mound (of dark blue glass) is exceptionally heavy, measuring as much as 0·82 in. wide by 0·37 in. thick, and its outer face tends in section to be conical rather than convex. In another type from the same site the section is formed by three sides of a square joined by a convex curve. Neither the midrib type nor the twisted cable type, which are common in Sirkap, are found in the Bhir Mound.

A black glass bangle from Giri (Gr. '27–B3) is of the later plano-convex form but with a flange on one side and with a row of small projecting bosses in place of a midrib, perhaps in imitation of a *dharmacakra* of the kind frequently seen among early Indian reliefs. The date of this bangle, which is illustrated in Pl. 210, *j*, is uncertain. It may be as late as the fifth century A.D.

VESSELS. Nos. 1–15

All the glass vessels or fragments of vessels found at Taxila are, without doubt, of foreign origin and nearly all date from the first century A.D. The best preserved are small flasks of sea- or jade-green glass identical with those which were common throughout the Roman Empire during the early centuries of the Christian era. Besides these there are samples of various kinds of glassware from factories in the Mediterranean area, viz.: (*a*) lace glass or *vitro di trina*; (*b*) ribbed glass; (*c*) swirled or marbled glass; (*d*) blue and white cameo glass; (*e*) mosaic glass; (*f*) colourless translucent glass; (*g*) millefiori glass. Up to date no vessels or fragments of vessels have come to light which there is any reason to believe were manufactured in India, and whatever evidence is at present available goes to show that up to the close of the first century A.D. and possibly for several centuries later Indians were ignorant of the art of glass-blowing or of making any but the simplest kinds of glassware, such as bangles, tiles or beads.[1] This conclusion is borne out by fresh evidence that has come to light at Begrām, the ancient Kāpiśī, in Afghānistān, where M. Hackin has recently unearthed a surprisingly rich collection of glassware, almost all of which was imported from Syrian or other factories round the coasts of the Mediterranean.[2] And it also accords with the testimony of the *Periplus*, which

[1] In this connexion see *A.S.R.* (1922–3), pp. 157–8. The late Dr D. B. Spooner was wrong in concluding from the evidence at Taxila that Indians were well acquainted with the art of making glass vessels. As stated above, all the glass vessels found at Taxila or on other ancient sites in India and Afghānistān appear to be foreign imports.

[2] J. Hackin, *Recherches Archéologiques à Begram*, Chantier, no. 2, 1937, *passim*. Alexandria, as well as Tyre and Sidon, was famous for its glass factories, but within the empire Campanian glass, especially coloured glass, was in greater demand than Syrian and Alexandrian. Rostovtzeff, *The Social and Economic History of the Roman Empire*, p. 71; Warmington, *The Commerce between the Roman Empire and India*, p. 271 and n. 30.

STRATIGRAPHICAL CHART OF GLASS OBJECTS OTHER THAN BEADS AND BANGLES

Class	Bhir Mound strata				Sirkap strata				Other sites[1]
	IV 5th to 6th century B.C.	III 4th century B.C.	II Maurya	I Surface	VI–V Greek	IV Early Śaka	III–II Late Śaka-Parthian	I Surface	
Vessels (nos. 1–15)	—	—	—	—	—	6	1, 2, 4, 7–9, 12–14	3	5 from Bādalpur 15 from R.P.
Miscellaneous (nos. 16–23)	20, 21	—	—	—	—	—	17–19, *a*, 19, *c*, 23	—	16, *a*, 19, *b* from Dh. 16, *b* from Kn. 23 from Jl.

Dh. = Dharmarājikā; Jl = Jaṇḍiāl; Kn. = Kālawān; R.P. = Raṭṭā Piṇḍ.

TABLE SHOWING DISTRIBUTION OF GLASS OBJECTS IN SIRKAP

Block	Strata VI–V Greek	Stratum IV Early Śaka	Strata III–II Śaka-Parthian	Stratum I Surface
		East side of Main Street		
I	—	—	—	—
A	—	—	7	—
B	—	—	14	—
C	—	—	—	—
D	—	—	—	—
E	—	—	9, 17	—
F	—	6	8	—
G	—	—	—	—
H	—	—	—	—
I	—	—	23	—
J	—	—	—	—
K	—	—	—	—
L	—	—	—	—
		West side of Main Street		
I′	—	—	—	—
A′	—	—	2	3
B′	—	—	12	—
C′	—	—	—	—
D′	—	—	1, 4, 18, 19, *a–c*	—
E′	—	—	13	—
F′	—	—	—	—
G′	—	—	—	—
H′	—	—	—	—
I′	—	—	—	—
J′	—	—	—	—
K′	—	—	—	—

Note. Objects found in debris or spoil earth are not included in the above Table.

mentions that crude glass was exported from Alexandria to Barygaza, Nelcynda and Musiris on the western coast of India, and that glass vessels were imported into Barbaricon at the mouth of the Indus, whence they would naturally find their way up the river to Taxila.[1] The pieces of bright red opaque glass described under no. 19 below may well have been some of the crude glass imported from Alexandria. Pliny (*N.H.* xxxvi, 66) refers to crystal glass from India as superior to all others because it was 'made of pounded crystal'. It is possible that this glass may have come from Ceylon (Mitra, *Antiquities of Orissa*, I, 101). Certainly no specimen of it has been found at Taxila or elsewhere in India.[2]

Type *a*. ***Flasks and other vessels of blown glass, translucent and of sea-green or jade-green colour.***

1. Flask of sea-green translucent glass with silver-grey patina. Height 5·25 in. This was found in a large store-jar in a jeweller's shop in Sirkap, along with nos. 4, 18 and 19, *a*, *c infra*, and numerous other articles. It dates from the latter half of the first century A.D. It is typical

[1] For Graeco-Roman glassware in China and Khotan, cf. Warmington, *op. cit.* pp. 271–2.
[2] Cf. Schoff, *Periplus*, p. 220, n. 56.

of late Hellenistic and Roman flasks of blown glass which have been found in most parts of Europe and Western Asia.[1] For examples from Germany, to cite only one country, cf. Ritterling, *Hofheim*. Taf. XXXVIII, nos. 18 (=nos. 57 and 58), 15 (= no. 176), 13 (=no. 178). These examples date from about A.D. 40. Sk. '19–933/6; Block D'; sq. 59·114'; stratum II. Cf. vol. I, p. 188, Deposit E, no. 11. (Pl. 210, *c.*)

2. Similar, but of more slender proportions and with band at junction of body and neck (not shown in drawing). Height 5·5 in. Of jade-green colour. Monogram stamped on bottom, 𑀢. The monogram has the appearance of a Brāhmī letter, in which case it would afford evidence of local manufacture; but this is questionable. Sk. '20–143; Block A'; sq. 27·84'; stratum II. Cf. p. 195. (Pl. 210, *b.*)

3. Similar to preceding, but without band between body and neck. The glass also is a deeper green. Broken. Height 6·06 in. Sk. '20–167; Block A': sq. 27·84'; stratum I. Cf. p. 195. (Pl. 210, *a.*)

4. Neck of jug of sea-green glass with broad fluted handle and pronounced rim. Height 4·75 in. From the same jar as no. 1 (*q.v.*). The shape of the handle is characteristically Graeco-Roman. Sk. '19–933/7. (Pl. 210, *d.*)

5. Small glass flask of sea-green colour, neck missing. Height 1·68 in. Bādalpur '16–15; 1 ft. below surface. (Pl. 210, *g.*)

Type *b*. *Lace glass* (vitro di trina).

6. Piece from the rim of a bowl made of 'lace' glass, akin to the Venetian *vitro di trina*. 1·45 in. across. According to Beck, the glass was fashioned by taking canes made of threads of white and colourless glass which had been twisted together into a spiral and then pressing the canes, when plastic, round the inside of a mould and fusing them together with heat and pressure. The rim was formed by a piece of blue and white glass. Many examples of this wonderfully delicate ware have been found at Pompeii and other sites. The specific gravity is 2·51. Sk. '26–2,770; Block F; sq. 91·51'; stratum IV. Cf. pp. 135, 166. (Pl. 209, *m.*)

7. Fragment of bowl (?) somewhat similar to preceding, but the canes were made of coloured glasses, alternate canes being blue and white and black and white. Length 1·25 in. The blue is probably coloured with copper and the black with manganese. Sp.gr. = 2·31. Sk. '29–2,143; Block A; sq. 25·48'; stratum II. Cf. p. 146.

Type *c*. *Ribbed ware*. In imitation of metal repoussé ware. See Morin-Jean, *La Verrerie en Gaule sous l'Empire Romain*, p. 122, and for specimens from Afghānistān, Hackin, *Recherches Archéologiques à Begram*, nos. 177, 311.

8. Fragment of ribbed bowl, of amber-coloured glass. Length 1·9 in. The bowl is of a type not uncommon among Roman remains in Europe. Sk. '14–1,387; Block F; sq. 82·53'; stratum II. Sp.gr 2·66. Cf. p. 166. (Pl. 209, *k.*)

9. Similar, but of blue and white glass. Length 1·02 in. Sk. '26–2,576; Block E; sq. 71·49'; stratum III. Sp.gr. 2·47. Cf. p. 162, no. 21. (Pl. 209, *l.*)

Type *d*. *Swirled or marbled ware*. In imitation of marble, banded agate, etc. For examples from Europe, cf. Morin-Jean, *La Verrerie en Gaule sous l'Empire Romain*, p. 122; A. Kisa, *Das Glas im Alterthum*, teil II, figs. 214, 215, and pp. 519, 527. For an example from Begrām in Afghānistān, Hackin, *Recherches Archéologiques à Begram*, no. 311 and Pl. XXVI, fig. 61.

10. Fragment of a bottle of dark brown and white glass.[2] Length 2 in. The two different

[1] For an analysis of this kind of glass made by Mr Sana Ullah, see *A.S.R.* (1922–3), p. 158, col. IV.

[2] For an analysis of this kind of brown glass made by Mr Sana Ullah, see *ibid.* col. VII.

coloured glasses appear, according to Beck, to be partly in layers and he suggests that they were folded over before being blown into a bottle. Sk. '17–554; debris. (Pl. 209, *n*.)

11. Neck of a bottle of brown and white glass, of a well-known Roman type. Height 1·45 in. In this case 'the white glass was added to the brown base probably in the form of rings round the bottle before it was completely blown, and the final design got by a combination of drawing the surface with a wire and blowing the glass'.[1] Sk. '16–3,549; spoil earth. (Pl. 209, *j*.)

Type *e*. *Blue and white cameo-cut glass.*

12. There is only one specimen of this ware, and the surface is much corroded. It is the fragment of a bowl with part of the rim (length 2·12 in.), from the Parthian city in Sirkap. The ware is the same as that of the well-known Portland vase in the British Museum, the ground being a deep blue glass on which a layer of opaline white glass has been spread and the design then produced by cutting away and graving the upper layer just as was done in the case of cameos made from natural agates. Sk. '29–1,652; Block B'; sq. 29·89'; stratum III. Cf. p. 194. (Pl. 209, *h*.)

Type *f*. *Coloured mosaic glass.*

13. Similarly, only one specimen has been found of this singularly beautiful mosaic ware, and it is nothing more than the fragment of a bowl, 2·5 in. in length. The mosaic is made by taking small pieces of glass of the same thickness but of different shapes and colours, pressing them side by side, when plastic, into a mould and then fusing them together with heat and pressure. In this particular specimen the colours of the tesserae making up the mosaic are turquoise-blue, dark blue, jade-green, amber, amethyst, white layered with grey, white layered with pale brown, and gold.[2] The layered pieces are in imitation of natural stones. The gold is produced by backing a piece of colourless translucent glass with gold foil. The rim of the bowl is of turquoise coloured glass. Sk. '27–429; Block E'; sq. 75·90'; stratum II. Cf. p. 185. (Pl. 209, *i*.)

Type *g*. *Colourless translucent glass.*

14. Fragment of bowl with slightly everted lip, of colourless translucent glass, 2·12 in. long. Sk. '15–945; Block B; sq. 31·44'; stratum II. Cf. p. 148, no. 7.

Type *h*. Millefiori *glass.*

15. Fragment of a bowl of *millefiori* glass, 2·37 in. across. Rattā Piṇḍ '27–72; B4; 8 ft. below surface. In this ware each of the units of decoration is composed of a sort of small cell surrounded by a number of black points and enlivened with other colours, the whole looking rather like countless small flowers, whence its name of *millefiori*. Cf. Hackin, *op. cit.* no. 159 and Pl. v, fig. 9; A. Kisa, *op. cit.* vol. II, pp. 508, 552; G. A. Eisen et Fahim Kouchakji, *Glass*, vol. I, pp. 194, 197 and Pl. 30; Ed. Dillon, *Glass* (London, 1907), p. 49. (Pl. 209, *o*.)

MISCELLANEOUS. Nos. 16–23

16. Numerous flooring tiles of glass, either whole or fragmentary, were found in the *pradakshiṇā* of the great Dharmarājikā Stūpa and in room F1 on the west side of the same site. Others were found in the antechamber of chapel A1 at the Kālawān Stūpa (pp. 238, 246, 326 *supra*). The tiles average 10·25 in. square by 1·12 in. thick and are made of coarse translucent glass. The majority of them are of a bright azure blue colour, but a few are black, white or yellow. Those in room F1 at the Dharmarājikā and in the chapel A1 at Kālawān were not in their original

[1] Cf. Beck, *op. cit.* no. 952, p. 23.

[2] For analyses of various colours in glass, cf. *A.S.R.* (1922–3), p. 158. The fifteen specimens there listed include nine from Taxila, of the following colours: red (*haematinum*), greenish-blue, turquoise-blue, light green, amethyst, brown, light blue and cobalt blue.

positions, and it seems likely that all of them were taken from the procession path of the great Dharmarājikā Stūpa, when the pavement there had fallen into disrepair and partially perished. At what period the tiles were made, there is not enough evidence to show, but it was probably in the first or second century A.D., though it may have been earlier. Mr Beck remarks that the glass is in some respects very similar to that from the Bhir Mound.[1] The colouring agents appear to have been copper oxide for blue,[2] ferric oxide for yellow, and iron for black.

17. Two plano-convex lenses of blue glass. Diam. 2·4 in. Though shaped like a lens, these disks are not worked with a spherical curve, and even if polished on the flat surface, would be useless as lenses. They are very much of the same size and thickness as some of the Roman lenses and may possibly be an attempt at copying a lens by a person unacquainted with the making of a spherical surface; but they are more likely to have been used, merely as ornaments, for incrustation on metal.[3] Sk. '13–1,308; Block E; sq. 72·51'; stratum II. Cf. p. 162, no. 21.

18. Four glass disks. Diam. 0·5 in. Possibly draughtsmen or counters, like the bone and ivory pieces figured in Pl. 203, *q–v*, but more probably used for ornamental incrustation. They are much corroded, but there are signs of a pattern on them, as though they were made of variegated glass, partly colourless and partly white opal.[4] They come from the same hoard as nos. 1 and 4 above. Sk. '19–933/11; Block D'; stratum II. Cf. p. 188, no. 12. (Pls. 209, *p*; 210, *e*.)

19. Three lumps of brilliant red opaque glass in crude state. Their specific gravities are respectively 3·47, 3·76 and 3·11, and the weight makes it fairly certain that the first two contain a considerable percentage of lead. The colouring matter is red cuprous oxide, which indicates that the glass must have been made at a low temperature, as otherwise the cuprous oxide would have been converted into metallic copper.[5] 'In the first piece', says Mr Beck, 'many of the crystals have an appearance like cigarettes; the matrix of the second is unusually colourless, and the crystals are large and well developed. The third piece also has a good colour but is corroded for a considerable distance; the crystals appear to be arranged more or less in rows or strata.' Glass beads coloured with red and orange cuprous oxide have been found in Sirkap, but none of the red, and only one of the orange variety in the Bhir Mound. The red glass from the latter site is coloured with metallic copper.[6] Sk. '19–933/57; Dh. '16–618; mon. court A; Sk. '19–933/61. The first and last are from the same findspot in Block D' as nos. 1 (*q.v.*), 4 and 18 (stratum II). Cf. pp. 188, no. 13, 278.

20. Ear-reel of black or very dark green glass, decorated with a rosette on one side. Diam. 1·54 in. The glass is well made and free from quartz grains or other enclosures. The colouring matter is probably iron, but the particles are ultra-microscopic.[7] Unfortunately, the glass of this reel disintegrated in transit to England, whither it had been sent for examination, leaving only three or four moderate sized pieces and a great deal that was almost powder. Bm. '24–901; sq. 15·57'; stratum IV. Cf. p. 102.

21. Fragment of miniature casket of black or very dark green glass, resembling obsidian. Diam. 0·87 in. The glass is very like that of no. 20. Both come from an early stratum (*c.* fifth century B.C.) in the Bhir Mound. Bm. '19–1,889; sq. 10·38'; stratum IV. Cf. p. 102.

22. Dumb-bell shaped object of glass, possibly an ear-ornament. Length 1·25 in. Jl. '16–289; Mound B; room 3; 8 ft. below surface. Cf. p. 356. (Pl. 210, *f*.)

23. 392 lenticular pieces of grey-coloured glass found together in a hoard in Block I. Probably the rough 'flans' for making glass beads. Diam. from 0·37 to 0·56 in. Sk. '31–130 and 232; sq. 138·52'; stratum II. Cf. p. 170.

[1] Beck, *op. cit.* no. 958, p. 23.
[2] For an analysis of the blue tiles, see *A.S.R.* (1922–3), p. 158, cols. II, V.
[3] Beck, *op. cit.* no. 954, p. 23. [4] *Ibid.* no. 961. [5] *Ibid.* nos. 955, 956, 960.
[6] For an analysis of this by Mr Sana Ullah, cf. *A.S.R.* (1922–3), p. 158, col. I. Mr Sana Ullah thinks that this is the red glass called *haematinum* by the Romans. [7] *Ibid.* no. 957.

Chapter 36. STONE SCULPTURES

History of the Gandhāra School

AMONG the many problems of Indian art, few have been more baffling to the student than the history of the Gandhāra School. The museums of India and Europe possess thousands of sculptures belonging to this School, but among them there is not one to which a specific date can be assigned, nor has anything certain been known as to where and when the School originated, how it developed, or when it ceased to exist. Some of the sculptures do, indeed, bear dates engraved upon them, but the eras in which these dates are given are not specified, and the attempts made by different scholars to determine their initial years have resulted in the *floruit* of this School being placed any time between the first and fifth centuries A.D. And the problem has hitherto been complicated by two fundamental misunderstandings: first, by the general assumption that the strong classical influence observable in these sculptures was exclusively a legacy of Graeco-Bactrian art; secondly, by the failure to discriminate between the earlier Gandhāra School and the later Indo-Afghān School. From the evidence brought to light at Taxila we now know that a clear distinction in date and style is to be drawn between these two Schools, and we are thus in a position to introduce a certain measure of order into what was previously chaos, and to explain some of the chronological difficulties which had perplexed previous investigators. We are able, too, in the light of our new discoveries, to show that the Graeco-Roman influence which characterises almost every class of antiquity at Taxila was in a great measure due to the Hellenising tendencies of the Parthian conquerors while they were established there in the first century A.D.; and though the connexion between the arts of Taxila and Gandhāra is still in some respects obscure, there can be no question that the major problems in regard to the latter, particularly in regard to the source from which it drew its classical inspiration, have been substantially narrowed down.

Distinction between Gandhāra and Indo-Afghān Schools

Graeco-Roman influence under Parthian rule

Date of sculptures

In regard to the dates given on individual pieces of sculpture, we are still not in a position to fix them with precision, but it helps materially towards the solution of the problem to have established the following points: (*a*) that two eras were in use at Taxila, one starting approximately about 155 B.C. and the other about 58 B.C.; (*b*) that the earliest Gandhāra sculptures found on this site are referable to the late Śaka or early Parthian period; but (*c*) that most of the sculptures were imported from the North-West during the second or third centuries A.D.; and (*d*) that after the eclipse of the Gandhāra School no sculpture of any account is found at Taxila until we come to that of the Indo-Afghān School in the fourth and fifth centuries A.D.

Absence of local stone suitable for carving

As previously stated, the country round Taxila yields no fine stone or marble fit for figural carving, and in this district, therefore, no real development of plastic

art was possible until the practice became common of modelling images and reliefs in lime plaster instead of chiselling them out of the harder material. This, however, was not until the fourth or fifth century A.D. Up to that time the material generally employed by the sculptors of the North-West was stone, and this enables us to understand why almost all the stone sculptures recovered at Taxila came from abroad—principally from the Buddhist *ateliers* of Gandhāra, but a few from Hindustān and a few possibly from Western Asia.

Stone carvings of Maurya period

Apart from engraved gems, the earliest examples of stone carving from Taxila are the exquisitely fine miniature reliefs on the small ring-stones figured on Pl. 147, *b*, *c*, *d* and *g* ('Stone Objects', ch. 25, nos. 129–32). These date from the Maurya period (third century B.C.) and were in all probability imported from Hindustān. They are typical of the jewel-like workmanship of the Maurya craftsman, who at that time was learning to transfer to stone the technique acquired in the carving of delicate ivories and fine-grained woods.

Hellenistic toilet-trays

With the eclipse of Maurya power the influence of Hindustān disappears and gives place to that of the Bactrian-Greek. To the Greek period of the second century B.C. belongs a 'toilet-tray' adorned with an erotic scene in high relief and in the pure Hellenistic style ('Stone Objects', ch. 25, no. 62=Pl. 144, no. 62), and from then onwards until the latter part of the first century A.D. we have a series of these small toilet-trays, illustrating the rapid deterioration of Greek art which took place under the Śakas during the first century B.C. and the brief but notable revival of it which followed during the supremacy of the Parthians in the first century A.D. These toilet-trays have already been discussed in chapter 25, and there is no point in going over the same ground again. I should like, however, to emphasise once more the marked improvement in the design and quality of the carvings on these trays after the advent of the Parthians. This improvement is well exemplified by a comparison of nos. 63 and 65. Both of these trays depict drinking scenes, but in the former, which is of the early Śaka period, the figures are stiff and stilted to a degree, the folds of the garments are indicated by a multiplicity of parallel lines, the faces are wooden and expressionless, the eyes wide-open and prominent, and the hair so treated as to resemble an artificial wig. In the latter, which dates from Parthian times, the design is at once elaborate and free; the postures and movements of the figures easy and natural, and the details of drapery, hair and other accessories rendered with considerable skill. Where these toilet-trays were carved we do not know for certain; but the fact that twenty-five out of thirty-three of them are made of schist stone points decidedly, as I have already observed, to Gandhāra as their place of origin. The purely Hellenistic style of no. 65 and the use of steatite suggest that it may have been an import from Western Asia or Egypt, but steatite was also employed for no. 82, which is almost certainly Indian, and it should be noticed, moreover, that the singular treatment of the half-nude female figure in the centre (top) of the scene is closely paralleled not only on no. 76 but on a Gandhāra sculpture now in the Lahore Museum (Foucher, *A.G-B.G.* I, fig. 130). It is not unlikely, therefore, that this was a copy made at Taxila or in

Gandhāra of one of many such plaques which were, as we know, being imported at this time into the North-West.[1]

Group of proto-Gandhāran sculptures of chloritised micaceous schist

Side by side with these toilet-trays is a group of several sculptures in the round from Sirkap which exhibit the same stylistic features as the tray reliefs and supply further links with the incipient school of Gandhāra. They, too, are made of schist, but it is a particular kind of chloritised micaceous schist which is readily distinguished from other varieties and evidently came from some quarry west of the Indus, from which the early sculptors of Gandhāra obtained their stone before the introduction of phyllite. Chloritised micaceous schist, as well as some other varieties such as quartz schist (with pseudomorphs of pyrites), chloritised hornblende schist, etc., were, it is true, occasionally employed by later sculptors of this School in the second and third centuries A.D., but examples of such stones are few, and so far as the particular variety of chloritised micaceous schist of which I am speaking is concerned, it is safe to say that it was mainly used when the School was in its infancy and afterwards given up in favour of phyllite, either because the latter stone lent itself better for carving or because the particular quarry which supplied it was more accessible.[2]

In contrast with the general run of sculptures from Gandhāra, the members of this early group from Sirkap are in the round instead of in relief and are all distinguished by their relatively archaic modelling. Examples are illustrated in Pl. 211, nos. 3, 4; Pl. 212, no. 8; and Pl. 213, nos. 9–14. The earliest of them, perhaps, is the Caryatid-like female figure, no. 4 (Pl. 211), which dates from about the same time as the tray, no. 63, and exhibits the same formality in the treatment of the facial features and hair, and the same round prominent eyes (a particularly characteristic trait of these early pieces) coupled with an even greater rigidity of form. Not much later in date are the roughly fashioned male statuettes, nos. 9 and 10, and the fountain-head, no. 14. The bracket figures nos. 11 and 12 carry us another step forward in the evolution of this School, and the 'Lady of the lotus' (no. 3, *a*, *b*) and the male bracket figure no. 8 still further; but even in these last figures the workmanship is still immature and not completely emancipated from the trammels of archaism. Indeed, looking at nos. 3 and 4—the latest and earliest of the series—we notice that the former retains the same strictly formal treatment of the neck and the same prominent stare in the eyes, which is equally present in the small head, no. 13. We notice, too, that the folds of the drapery in fig. 3 are still shown in the same conventional manner, i.e. by a multiplicity of incised lines, as they are in the earlier figures, nos. 9, 10 and 11, as well as in no. 8.

Between the latest members of this Sirkap group, which might fitly be designated 'proto-Gandhāran', and the fully developed sculptures of this School illustrated in Pls. 214–226, there is still a substantial gap, but I think that this gap could

[1] I have in mind particularly the remarkable collections of Hellenistic plaster plaques, copied from silver originals, and of the glassware and other *objets d'art* unearthed by Hackin at Begrām in Afghānistān.

[2] These remarks apply to the sculpture of Gandhāra proper, particularly of the Peshāwar valley and Swāt. At Haḍḍa in Southern Afghānistān the sculptors made use of a local calcareous stone of fine texture, which has sometimes been confused with stucco.

probably be bridged by a little diligent search for other early pieces among existing collections of these sculptures, particularly those from the older sites such as Jamālgaṛhī.[1]

Date and significance of foregoing group

The initial date of this Sirkap group of sculptures can hardly, I think, be placed before about 30 B.C. or its latest date after A.D. 40. For on the one hand we must allow some decades after the eclipse of Greek rule in Gandhāra for the teachings of Greek art to have been virtually forgotten; on the other, we must allow some decades after the latest specimen of this group were produced for Gandhāra art to reach its maturity, as it appears to have done in the latter part of the first century A.D. We are thus forced to the conclusion that the School of Gandhāra was not the immediate offspring of Bactrian Greek art, but that it arose and took shape during the otherwise sterile Śaka period, at a time when Greek art in the North-West had all but flickered out. That Gandhāra art was inspired and helped along its course by monuments then still existing of the former Greek rulers and by the many Western models from the Graeco-Roman world which the Parthians imported, we do not doubt; nor do we doubt that it was equally inspired by the contemporary carvings and paintings of the Early Indian School. But the movement which produced this important school of Buddhist art and spread its influence to the furthest confines of the East unquestionably arose and developed on the soil of Gandhāra itself, and can no more be treated as an offshoot of Hellenistic art than it can be treated as an offshoot of Early Indian art.

Imports of Graeco-Roman sculptures

While the people of Taxila were importing these products of the early Gandhāra School, they were also importing—at any rate after the advent of the Parthians—many other artistic objects, including sculptures, from the Graeco-Roman world. Such are the silver Dionysus head (Pl. 209, *a*), the bronze Harpocrates (Pl. 186, *e*), the gold repoussé figures of Aphrodite and of Psyche with Eros (Pl. 191, *s*, *t*, *u*), and the stone statuette of Demeter (Pl. 211, 1), though the last may well have been a local copy of a classical original.

Local sculptures of Tarakī sandstone

About this same time, too, the local artists of Taxila were trying their hands on carving the soft grey sandstone of Tarakī, which is quarried at no great distance from Taxila. Two specimens of their work are illustrated on Pl. 212, figs. 6 and 7. Both of these statues are of heavy, uncouth proportions and, owing to the texture of the sandstone, unavoidably coarse in execution. Nevertheless, there is a certain imposing dignity about fig. 6, which is by no means unattractive and which makes one regret that these local efforts could go no further than they did. As to their date, the peculiar treatment of the drapery, particularly of fig. 7, calls to mind certain coins of Azes I (*B.M. Cat. of Greek and Scythic Coins*, Pl. XIX, 1) on which the figure of Hermes (?) is clad in much the same kind of free-flowing drapery, which falls loosely round the shoulders and arms and stands out on either side of the hips. The date suggested by the drapery would accord also with the wig-like dressing of

[1] Anyone making such a search would naturally pay particular attention to pieces made of schist, as distinguished from phyllite. Among the sculptures from Taxila which are to be referred to this period may be mentioned nos. 15–17, 89, 165, 167, 179, 187 and the remarkable panel no. 135, in which the faces exhibit the peculiarly round, staring eyes which characterise all the early Gandhāra sculptures.

the hair which resembles that already noticed in the statuette no. 4 and in the toilet-tray no. 63 (Pl. 144),[1] both of the Śaka period. The other statue, no. 6—possibly a Bodhisattva—may be somewhat later, but not, I think, very much. There is another sculpture also (no. 15) which is of the same age as the two preceding pieces and, like them, made of Tarakī sandstone. This is a large *makara* head—possibly from a pediment—which is rather in the style of the Early Indian School.

Two groups of Gandhāra sculptures

To pass on to the later sculptures of the Gandhāra School, executed after it had reached its full maturity, it is to be observed that a large number of these sculptures have been found at Taxila in association with two structures, viz. the chapel L at Dharmarājikā Stūpa and the chapel A1 at Kālawān. Both of these chapels are built of the same kind of small diaper masonry which was in vogue during the early Kushān period, and if it could be shown that the sculptures recovered from them were contemporary with the structures, as I was at first inclined to assume, we should have had two very valuable landmarks for tracing out the evolution of the School. But unfortunately this is not the case. The heterogeneous character of the sculptures in both groups, not only in regard to their style but in regard also to their size, design and subject-matter, leaves no room for doubt that they were dedicated in these shrines by a variety of different donors and at different times, so that the only conclusion that we can draw as to their age is that most of them are probably subsequent to the date (*c.* A.D. 80) when these two buildings were erected.

Compared with the magnificent examples of sculpture in stucco which my excavations have brought to light on the later Buddhist sites at Taxila, the 200 and more fragments of stone sculpture cut but a sorry figure. Yet, in spite of their mutilations, they still possess considerable artistic and iconographic interest.

Classification of sculptures: architectural pieces

Of the architectural pieces, the first to claim our notice are the brackets nos. 16 and 17 from the Dharmarājikā Stūpa, which, together with two others, evidently come from the same building. They are all made of quartz schist and probably belong to a relatively early phase in the history of the School, though not as early as the specimens from Sirkap. To a later period belong some richly ornate jambs (Pl. 214, nos. 22, 23), some carved with a series of panels enshrining pairs of full-length figures, and one (no. 24)—a very remarkable specimen—with the figures mounted on one another's shoulders. There are also some noteworthy fragments of friezes, miniature columns and pilasters, one of which (Pl. 214, no. 25) is specially instructive in connexion with the origin of the medieval fluted column of Kashmīr. For the following observations on the remaining pieces in this collection, which treat briefly of their iconographic and artistic interest, I am indebted to M. Alfred Foucher.

Of the capitals, some are of the Indo-Persian type and either take the form of a bell (nos. 27, 28), or of pairs of animals back to back, bulls in the case of no. 33 and lions in the case of no. 34. Others are of the pseudo-Corinthian type, with their curved acanthus leaves sometimes sheltering a Buddha in a pose of Meditation (Pl. 214, no. 35). To these two same types also belong a number of decorated pilasters, many of which bear a human figure in relief on the

[1] The same wig-like treatment of the hair is to be seen on Kushān and Gupta coins, but it is certain that this sculpture cannot be as late as the Kushān period.

Decorative pilasters and other ornamental motifs

face of their round or flat shafts (Pl. 215, nos. 37–40), the figure in some examples appearing merely as an ornamental attachment on the shaft (nos. 38–40), in others gradually taking the place of the shaft itself and eventually standing fair and square on the base, like a Caryatid (nos. 63–70). With these we may also compare the almost free-standing but unhappily mutilated figure, no. 89 (Pl. 217). The motifs of these figures are strangely varied, e.g. the dancing amorini of nos. 63 and 64 and the flute player of no. 70 (Pl. 216). Among other architectural pieces decorated with figures of a similar class, attention may be drawn to the base (Pl. 216, no. 62) with three figures dancing or beating time to the music of the guitar, and to the cornices (Pl. 216, nos. 72, 73) with little cupids carrying sinuous garlands on their shoulders and winged celestial beings appearing in the background. Side by side with them are many typical examples of ornamental designs derived from the vegetable or animal kingdoms or based on geometrical patterns. Thus, among floral and foliate motifs we mark, by reason of its frequency, the four-petalled wild rose (no. 41), and by reason of the admirable treatment of their leaves, the pipal (no. 43), the mango (no. 42), and most of all the vine (Pl. 215, nos. 51, 53). Among animals, on the other hand, the most noteworthy because of their rarity are the peacocks of no. 58, and because of the vigorous touch in the carving, the cock (Pl. 215, no. 59), the dragon (Pl. 215, no. 60) and the *garuḍa*-head (no. 61).

Legendary scenes

Passing to the legendary scenes, we are safe in identifying the *Jātaka* of the young monk Śyāma (Pl. 217, no. 90, *a*, *b*), which has the same setting, with his blind old parents and Indra making the same baptismal gesture, as in the replica of Jamālgaṛhī (*A.G-B.G.* fig. 143). No. 91 shows us the Bodhisattva seated on a lotus with a praying figure on either side—probably at the moment when, in the Tushita heaven, he proceeded with his companions to make the four examinations of the time, the continent, the country and the family, wherein he should be born again for the last time (*A.G-B.G.* figs. 145, 349). This last descent to earth is pictured for us in the conception scene, or rather 'Dream of Queen Māyā' (Pl. 218, no. 92) which, like the slab of the same scene in the Louvre (*A.G-B.G.* fig. 149) is unfortunately much mutilated. A woman holding an ewer in her left hand (no. 187) is almost certainly a piece from one of the Nativity scenes.

Religious vocation

To the time of the 'religious vocation' belong three representations of the *Samcodana* or 'Instigation', when the gods exhorted the Bodhisattva to leave the world. (*A.G-B.G.* fig. 164. Cf. vol. II, p. 220; Burgess, *Anc. Mon. India*, Pl. CII, 4.) One of these, which is tolerably well preserved (Pl. 217, no. 93), shows us the Bodhisattva seated under a canopy of curious appearance. On the pedestal of fig. 94 (Pl. 218; cf. the fragment no. 95) this canopy is omitted but the two donors of the statue are introduced. The disposition of the figures in no. 97 is so unusual that one might well hesitate over its identification. The half sitting posture of the Bodhisattva, to say nothing of the absence of the Bodhi tree, excludes the possibility of its being the scene of the 'First Meditation', and moreover the haloes of the figures beside the Bodhisattva show that he is in the company of gods. Among other broken pieces are some particularly good figures from the scene of the 'Sleeping Women' (nos. 98–100, Pl. 218) and a mutilated one from the 'Great Departure' (no. 101), in which the harness of the horse Kaṇṭhaka affords an interesting study.

The Bodhi Tree cycle

To the cycle of the Bodhi Tree belongs a headless and rather characterless figure of the fasting Bodhisattva (no. 102), a fragment evidently from the episode of the grass-cutter (no. 103), and several pieces from the 'Temptation' (Pl. 219, nos. 104, 105, and no. 199). To the army of Māra belonged, no doubt, a number of barbarian-looking heads or busts (nos. 106–9). The first mentioned of these, curiously enough, wears the same crossed breast-chain with a medallion at the centre as the corresponding figure on the north gate of Sāñchī (*Mons. of Sāñchī*, Pl. XXIX). Lastly, the commonplaceness of the scene depicting the 'Presentation of the four alms-bowls' (Pl. 219, no. 110, middle compartment; cf. fragment no. 111; and for the cult of the bowl, no. 112) is compensated by the rarity of another scene depicting the 'Offering of food' by the two merchants, Trapussa and Bhallika. Such, at any rate, is the episode that we believe can be recognised in the beautiful panel no. 114 (Pl. 220), notwithstanding the absence of the traditional

ox-carts. The fact that the assistant figure on the right of the Buddha has his head covered with his cloak, proves the relative humility of his caste (cf. no. 115), and an offering made by two of the faithful, who are neither Brāhmans nor nobles but at the most bourgeois, is hardly susceptible of any other interpretation. Are we to recognise a similar scene in the very mutilated panel, no. 116? We incline to think so, for the reason that the appearance and type of the assistant figures are not in favour of the only other possible hypothesis: that of the *Adhyeshaṇa*.

The 'Entreaty of the Gods'

On the other hand, it is certainly this 'Entreaty', addressed to the newly accomplished Buddha by the two gods, Brahmā and Indra, that he should consent to preach his doctrine, which is featured on the lower panel of fig. 110 (Pl. 219), and which in my opinion is again featured in no. 117 (Pl. 220), though in the latter relief Brahmā, who stands on the right of the Buddha below the Vajrapāṇi, has exchanged his disguise of a Brāhman novice for that of a venerable and bearded doctor.

The First Sermon

Seeing that it was due to the intervention of Brahmā and Indra that the doctrine of salvation was revealed to the world, we might have imagined that these two deities at least would have been sure of a place of honour at the First Sermon. As a fact, they are usually absent from the representations of that scene, when, in the Deer Park near Benares, Buddha first set in motion the Wheel of the Law. The only exception, to my knowledge, is no. 118 (Pl. 220), where the artist has placed Buddha between the two great gods. Observe that Brahmā, the better preserved of the two, has assumed in this sculpture the type of the Brāhman novice. For the attitude of the Master himself, of his five first disciples and of the two gazelles squatting on either side of the Wheel of the Law, we find the ordinary formulas used (cf. *A.G-B.G.* fig. 220; *J.I.A.* VIII, pp. 61–9, Pl. 10, nos. 4, 5; for the type of monks, see also nos. 166, 172–3).

The return to Kapilavastu

Several of the miracles that distinguish the life of the Buddha are easy to recognise among the fragments in the Taxila collection. Thus, a very mutilated piece (no. 120) depicts the episode of Nanda carrying his cousin's alms-bowl and being led by him outside the walls of Kapilavastu to the monastery where he was to be more or less voluntarily ordained. One might also be disposed to identify no. 121 (Pl. 221) as one of the incidents that marked the return of the Buddha to the scene of his birth; for the relief represents him surrounded—except for the Vajrapāṇi—entirely by women. Had a single child been portrayed in front of the throne, we could hardly have done otherwise than recognise Rāhula accompanied by his mother Yaśodharā, the one-time wife of the Master, along with his step-mother Mahāprajāpati and other matrons of the Śākya clan; but since there are two children and the bigger of them appears to be a girl, we must evidently regard this group of women either as some of the many benefactresses of Buddha or simply as so many donors. In either case we cannot but admire the skilful and telling characterisation of the different ages of the womenfolk.

The visit of Indra

Of the famous visit of Indra we possess not less than two versions, one of which (no. 113, Pl. 219) is so original that we shall have to revert to it again later on. The panel is divided by a balustrade into two compartments, in the upper of which are flying *devas*, raining down flowers on the Buddha, who is seated in meditation in the traditional grotto. By way of exception to the usual practice, Brahmā is associated with Indra, who has no other companion, and instead of the usual monkeys and lions, wild boars alone represent the animals of the jungle. The other panel (Pl. 221, no. 124) shows us, on the contrary, the usual picture of the mountain with its hollow cavern and wild animals and *yakshas* who haunt it,[1] but the sculptor has forgotten to put in the flames which—owing to the *tejas* of the Master—licked the walls of the grotto (cf. *A.G-B.G.* fig. 246). We must confess, too, that the chief actor is lost amid the medley of gods who make up his cortège. Even if the composition itself did not suffice to determine the occasion and with it the figures taking part in this episode, the elephant Airāvata and the royal umbrella would clearly indicate the presence of Śakra, the Indra of the gods.

[1] It seems that on the right we must recognise Pāñcika with his spear.

The Great Miracle

The not less celebrated 'Offering by the monkey' near Vaiśāli appears only in one fragment, which shows the monkey, holding in both hands the bowl full of *madhu* (Pl. 221, no. 125). Of the subjugation of the mad elephant at Rājagṛiha we have no trace, and of the ascent of the Buddha to the heavens of the thirty-three gods at Sāṅkāśya we possess only one very conventional representation (since the triple ladder is absent) at the top of no. 110 (Pl. 219). We are a little better off, however, in regard to the great miracle at Śrāvastī. We know that this miracle, by which the six heretical teachers were confounded, appears in the texts and on the monuments in two very different forms. In one, the artist insists on peopling the sky in his relief with all sorts of marvellous apparitions—Buddhas, Bodhisattvas and divine beings surrounding Śākya-muni, who is seated on the magic lotus of a thousand petals (cf. *A.G-B.G.* fig. 79). Of this type many fragments have survived, chiefly from the Dharmarājikā Stūpa (cf. nos. 122, 123, 126, 127, 128, 129, 130, 131). In the other form the artist confines himself to representing the triumphant discourse of the Buddha in the shade of the mango tree, and this is what we see in the curious old version of no. 132 (Pl. 222), which seems to be a direct transcript taken from the Early Indian School (cf. the North Gateway of Sāñchī in *The Monuments of Sāñchī*, Pl. xxxiv, A1). Seated on his usual seat under the mango tree, the Buddha is not yet portrayed even in the pose of a preacher; framing him are the faithful Vajrapāṇi and another of the celestials; to his left, flanked by his courtiers, is King Prasenajit on a throne; to the right, on a rattan stool, with one of his disciples standing behind him, is a fat and naked *tīrthaṅkara*—apparently that Purāṇa Kāśyapa who seems to have been a particular abomination to the Buddhists. What strikes one particularly is the simplicity and homeliness of this sculpture, contrasted with the complex and heretic stylisation of later compositions.

Brāhman ascetics

Though these new heretics are seldom represented by the artists of Gandhāra, the reliefs not infrequently portray other rivals of the Buddha and his monks, who are no less desperate and redoubtable, viz. the Brāhman ascetics. Thus, one of the Taxila fragments (Pl. 222, no. 133) gives us, side by side, a very characteristic picture of a novice with flowing hair (*brahmacārin*), and another of an old ascetic, bent and bearded, holding his flask (*kamaṇḍalu*) in his hand and clothed in a decorated robe. Another fragment (Pl. 222, no. 134) shows us an old anchorite seated on a rolled mat (*bṛishi*) in his hut of rushes and leaves, and in front of him a sacrificial altar. The latter is the Iranian counterpart—like the pyres carved in the living rock at Persepolis—of the *vedi* in the form of an egg-shaped cup among the hermitages at Sāñchī. Whether we have here to do with a Bhārgava or an old Kāśyapa or the like, it is impossible to say; nor can we determine whether the numerous anchorites of fig. 135 (Pl. 222) were some of the 'Sixteen Pārāyanas' who came to question the Buddha (*A.G-B.G.* I, pp. 374 ff. and II, fig. 432); but this last discovery is certainly one of the most original. The right portion of the bas-relief shows us a group of Brāhman ascetics, clean-shaven, moustached or bearded, with flowing or shaven hair, clad in bark or in the spotted skins of antelope. In the foreground two of them are carrying between them a third member of the party, suspended head-downwards from a long pole—a curious example of the bizarre practices to which these old-time fakirs were already submitting themselves.

The end of the Buddha

Of the last years, of the death and funeral of the Buddha, we have only a very few mementoes, and those in a very fragmentary condition. Are we to recognise in the corpse-strewn scene of no. 104 (Pl. 219) the massacre of the Śākyas by Virūḍhaka, the son of Prasenajit? And are we to believe that the two figures scaling the rocks in fig. 136 (Pl. 222) were the assassins hired by Devadatta to roll a mighty rock on to the Buddha? Owing to the sadly damaged state of the pieces we cannot be sure on these points; the only thing is to wait until some other and better preserved replicas come to light. For it is only when we have to do with scenes known from a number of extant examples that we can hope to identify such mutilated pieces with confidence, though the grief-stricken attitude of the figure in no. 137 enables us to recognise a Vajrapāṇi, broken from one of the Nirvāṇa scenes (*A.G-B.G.* figs. 279, 280); and, again, a fragment of a coffin surrounded by flames (Pl. 222, no. 138) is quite enough for us to say with confidence

that it belonged to a relief depicting the cremation of the Buddha's remains (*A.G-B.G*, figs. 285–7).

Images, genii and gods

From an iconographic point of view the Taxila collection furnishes us with a number of interesting details, but with nothing particularly novel. We have already observed that the Jovian or Herculean type of the Vajrapāṇi (nos. 140, 192) is one that is well known to us. On the other hand, we find confirmation here of the existence of the type of Pāñcika and of Hāritī with the 'horn of abundance' (cf. nos. 1, 2, Pl. 211, *A.G-B.G.* figs. 372, 373).[1] As to the figures of gods, we have already noted that it was the practice of this School to represent Brahmā in the form of a Brāhman monk, young or old, and to distinguish Indra by a royal toque. Indeed, we possess quite a series of these toques of different models but all of them of a characteristic and symbolical shape (cf. nos. 147–50). Finally, let us note that, apart from these usual deities, we catch glimpses here and there of at least one member of the Hindū pantheon, whose popularity is well attested on the coins of the Kushān kings, namely Maheśvara or Śiva with his bull (no. 151). (Cf. *A.S.R.* 1913–14, Pl. LXXII, *a*.)

The Bodhisattvas

Of the Bodhisattva Siddhārtha, the future Śākya-muni, we have already mentioned several images (nos. 152, 153 and the pedestal, no. 94). A very magnificent type of the Bodhisattva, in all the elegance of his rich costume and princely jewels, is to be seen in no. 142 (Pl. 223). That, like no. 143 (Pl. 224), it represents Maitreya, who will be born again for the last time as a Brāhman, with the same head-dress and the same *kamaṇḍalu* (water-vessel) as Brahmā, is only what we should expect and what we can hardly doubt. Where doubt would arise would be if one pretended to discover images of a Bodhisattva other than Siddhārtha and Maitreya. It would be vain, for example, to attempt to find the Avalokiteśvara or Padmapāṇi in the figurine of the *deva* holding a large lotus in no. 123, which is only a fragment from the 'Miracle at Śrāvastī', but that this *deva* is, from a sculptural point of view, the ancestor of the future Padmapāṇi, or that the Indra of the pedestal of no. 43 has already adopted the pensive attitude of the Japanese Mirokou, we should not for a moment be inclined to dispute.

The Buddhas

It is the same with the Buddhas. To say nothing of the archaic method of representing them by their foot-prints (nos. 154), or of the stray piece from Mathurā (no. 155), we have every type of Gandhāran image, some with waved or curling hair (no. 156), some clean-shaven (no. 157), or moustached (nos. 158, 159), standing (nos. 157, 159, 160), or sitting, sometimes in Indian, sometimes in European fashion. This last attitude (no. 198) is a peculiarly interesting one, because of its rarity. Then we possess one figure standing on a lotus (no. 160), which for this very reason may be inferred to have formed part of a 'Great Miracle' relief. And finally there are two Buddhas standing side by side (no. 188), which were probably broken from a frieze containing not less than seven such figures (*A.G-B.G.* fig. 457). But, all told, we have only to do with Śākya-muni himself and his reduplications, or with two of his human predecessors; there is no question here of Dhyāni-Buddhas any more than there is in the rest of the Gandhāra School.

CATALOGUE OF STONE SCULPTURES

By H. HARGREAVES, F.S.A.

1. Statuette in the round of pot-stone (impure talc or steatite), representing a goddess seated on a four-legged throne. Height 4·62 in. She is clad in a classical dress consisting of a long tunic and mantle; in her left hand she holds a 'horn of plenty' (*cornucopia*); her right hand is wrapped in her mantle. On her head is a low *polos*. Over the stool is a coverlet with chequered pattern. The type is a common one throughout the Graeco-Roman world and has been identified variously as Demeter, Tyche, Fortuna, Bona Dea, etc. As early as the middle of the sixth century B.C., Boupalos of Chios executed a statue of Tyche for Smyrna, which,

[1] See, however, the descriptions of nos. 1 and 2 *infra*. There is no reason to connect these two pieces with either Buddhism or Gandhāra. [J. M.]

DISTRIBUTION OF STONE SCULPTURES

No stone sculptures were found on the Bhir Mound site. For carved toilet-trays found in Sirkap, cf. 'Stone Objects', ch. 25, nos. 62–97

SIRKAP

East side of Main Street			West side of Main Street		
Block	Strata III–II Śaka-Parthian	Stratum I Surface	Block	Strata III–II Śaka-Parthian	Stratum I Surface
I	—	—	I′	—	—
A	—	—	A′	4	—
B	10	—	B′	—	—
C	12, 13	—	C′	1	—
D	—	—	D′	3, 5	9
E	—	—	E′	—	8, 135
F	—	—	F′	—	—
G	—	—	G′	—	—
H	14	—	H′	—	—
I	—	—	—	—	—
J	11	—	—	—	—
K	—	—	K′	—	—
L	—	—	—	—	—

OTHER SITES

Akhaurī (Chir Tope B). No. 59

Bajrān. No. 176

Bhamāla. No. 2

Dharmarājikā. Nos. 6, 15–17, 20–7, *a–d*, 28–30, 32–44, 47–54, 56–8, 60, 63–7, 70, 71, 73–5, 78–82, 84–91, 93, 95, 97–101, 103, 106–9, 111, 112, 114–16, 118, 120–3, 125–32, 136–41, 145–53, 155, 156, 158, 161, 162, 164–75, 178, 179, 181–7, 189, 190, 192, 194, 195, 198, 199

Giri. No. 113

Jaṇḍiāl. No. 154

Jauliāñ. Nos. 45, 46, 94, 124, 157, 160, 197

Kālawān. Nos. 19, 61, 62, 68, 69, 72, 76, 77, 92, 96, 102, 104, 105, 117, 119, 133, 134, 144, *a*, *b*, 163, 177, 180, 193, 196

Kunāla. No. 18

Mohṛā Morādu. Nos. 31, 55, 83, 110, *a–c*, 142, 143, 159, 188, 191

according to Pausanias (IV, 30), had a *polos* on her head and held in her hand what the Greeks called 'the horn of Amalthea'. In India the type is familiar on coins of Azes I and II and appears to have been adopted for the *yakshī* Hāritī,[1] whom this statuette possibly represents. Date, early first century A.D. Sk. '22–860/2; Block C′; sq. 52·85′; stratum II. Cf. p. 192 *supra*. (Pl. 211, no. 1.)

2. Similar to the preceding and of potstone, but of later date and crude workmanship. Height 2·7 in. The goddess has her head and shoulders turned slightly to her right and is leaning against a cylindrical shaft at her back; she wears an Indian *sārī*, necklace and bangle, and in place of the *cornucopia* in her left hand she holds what appears to be a pair of lotus buds. A hole pierced in the top of the head was intended probably for fixing the *polos*. Date, fourth to fifth century A.D. Bhamāla; '29–282. Cf. p. 396 *supra*. (Pl. 211, no. 2.)

[1] In Buddhist art Hāritī is frequently figured as the consort of the *yaksha* Pāñcika, 'Giver of riches'. Cf. Foucher, *Beginnings of Buddhist Art and other Essays*, pp. 139–46, 271–91.

3. Standing female figure of chloritised mica schist, in the round. Height 9 in. The figure is naked save for a shawl or *sārī*, which falls over the left arm and below the hips. The left hand holds the hem of the *sārī*; in the right hand, which is raised to the breasts, is a lotus Her ornaments consist of a hip girdle (*mekhalā*) with square clasp in front and three rows of beads; a breast-chain, crossed both front and back; bracelets; armlets; and a narrow *taenia* across the forehead. The hair is taken back from the forehead and falls in a long plait down the back, with a few curls on the two shoulders. On the crown of the head, at the back, is an ornamental medallion. The type appears to be derived from a Greek Aphrodite type, but is much Indianised. It may have been intended to represent an Indian *yakshī* or fairy; but it seems more likely to be the goddess holding a lotus in her hand who is portrayed on certain autonomous coins of Taxila, and may represent either the Tyche of the city, or, more probably, Māyā. (*B.M. Cat. Anc. Ind. Coins*, Pl. XXXII, 5, 6). In the Gandhāra School, to which this sculpture belongs, figures in the round are very rare and for the most part earlier than the usual alto rilievos. (Cf. Mathurā Museum, F42.) This statuette dates from the Śaka-Parthian period and is probably to be referred to the early part of the first century A.D. For the deposit (G) in which it was found in company with a large collection of copper dies, see vol. 1, p. 189. Sk. '19–790; Block D'; sq. 58·116'; stratum II. Cf. *A.S.R.* (1919), Pl. IX, 1, 2. (Pl. 211, no. 3, *a*, *b*.)

4. Standing female figure in the round of chloritised mica schist, probably dating from the first century B.C. Height 7·25 in. The pose is rigidly frontal, with feet front, legs together, and hands on hips. Save for ornaments consisting of anklets, girdle, crossed breast-chain, armlets and bangles, the figure is nude. The hair, which is treated like a wig in front, is taken back from the forehead and falls in a long plait down the back, with a few curls on each shoulder. On the top of the head is a low *polos*. Beneath the small base is a projecting tenon, evidently intended to fit into a socket-hole. In ancient times the statuette was broken into two at the knees, and, in order to repair it, two small holes were drilled between the legs, one above and one below the fracture. The stiff frontal pose and the *polos* on the head suggest a Caryatid, but the figure is so small that it can hardly have served that purpose. Possibly the sculptor was endeavouring to portray an archaic type, such as that of the 'Mother or Earth goddess', which was still being perpetuated at Taxila as late as the first century A.D., but this is quite problematical. Cf. pp. 195–6 *supra*; *A.S.R.* (1929), Pl. XVI, 1, 2. Sk. '29–1,206; Block A'; sq. 18·93'; stratum III. (Pl. 211, no. 4, *a*, *b*.)

5. Standing female figure in the round of pale grey micaceous slate. Height 4·12 in. The figure, which may be that of a donor belonging to a group, wears a sleeved tunic reaching to the feet, and a cloak which appears to be held in place by shoulder-straps passing in front of the shoulders and attached, perhaps, to the belt. The hands are raised in front of the waist and support a tray (?) full of flowers or other offerings. The ornaments worn comprise anklets, bangles and girdle (*mekhalā*). The head, which was made in a separate piece and joined to the body by a tenon and socket, is missing, but two plaits of hair are shown falling over the cloak at the back. Probable date, early first century A.D. Cf. p. 191 *supra*; *A.S.R.* (1928), Pl. XIX, 2. Sk. '28–1,163; Block D'; sq. 63·100'; stratum II. (Pl. 212, no. 5, *a*, *b*.)

6. Standing male figure in the round of grey Tarakī sandstone.[1] Height 16 in. Wears *dhotī*, shawl, bracelets and necklace (?). The right hand is raised in front of the breast with the fingers in what is known as the *chin-mudrā* or *jñāna-mudrā*, denoting meditation, knowledge and purity. The left hand rests on the hip. The head and feet are missing. Although the figure is ostensibly in the round, the front is flattened as in a relief and the back is not modelled. As the sculpture was found at the Dharmarājikā Stūpa, there can be no doubt that it is Buddhist, and we may surmise that it represents the Bodhisattva at a period when his types had not yet been fixed. Like nos. 7 and 15, it is the work of a local sculptor of Taxila. Date, early part of the first century A.D. or perhaps the latter part of the preceding century. See p. 694 *supra*. Dh. '12–277; north-east of Main Stūpa; 3 ft. 6 in. below surface. Cf. *A.S.R.* (1912), Pl. VII, *d*. (Pl. 212, no. 6.)

[1] This sandstone is impregnated with calcium carbonate.

7. Standing male figure of grey Tarakī sandstone in the same massive style as the preceding but perhaps a little earlier. Height 26·25 in. The figure wears a tunic tied by a cord at the waist and reaching to the knees, long shawl or *himation*, high boots and necklace(?). The high boots suggest that it may represent Sūrya, the Sun-god, whose temple is said by Philostratus (*Life of Apollonius*, II, 24) to have stood in the city of Sirkap, where the statue was found. Like no. 6, the statue, although free-standing, is treated as much like an alto rilievo as a figure in the round. The right forearm, which was attached by means of a tenon and socket, is missing, and the head is defaced. The hair is arranged in the same wig-like fashion as on no. 4 and other figures of the early Gandhāra School. The peculiar treatment of the drapery, which falls in loose folds round the shoulder and arms and stands out on either side of the hips, recalls that on certain coins of Azes I. (*B.M. Cat.* Pl. XIX, 1.) Probable date, latter part of first century B.C. Sk. '16–A739; stratum II. Cf. pp. 694–5 *supra*. (Pl. 212, no. 7.)

8. Bracket of chloritised mica schist in the form of a winged male figure, with hands in front of breast, possibly holding some object. Height 4·75 in. The figure wears bangles, necklaces and shawl, which is drawn across the back and through both arms, leaving the front of the body bare. On the head is a broad-tasselled bandeau. The feet and ankles are missing. Observe the rough heavy character of the modelling and the careless workmanship; also the formal treatment of the folds of the shawl, as in other figures of this period. Such brackets as this one and nos. 11, 12 and 16–21 were commonly used to adorn the domes of stūpas near their base. (Foucher, *A.G-B.G.* I, p. 59, fig. 12.) Early Gandhāra School. First half of first century A.D. Sk. '27–83; Block E'; sq. 75·93'; stratum I. Cf. p. 184 *supra*. (Pl. 212, no. 8.)

9. Standing male winged figure in semi-relief, of chloritised mica schist. Height 4·75 in. Wears scarf in same manner as preceding, leaving the front of the body nude. The two hands are raised in front of breast, holding uncertain object (? bird). The head is missing. The figure is of heavy proportions, coarsely modelled and carelessly finished. Early Gandhāra School. Probable date, first half of first century A.D. Sk. '14–164; Block D'; sq. 60·77'; stratum I. Cf. p. 191 *supra*. (Pl. 213, no. 9.)

10. Standing male figure in the round, of chloritised mica schist. Height 7·37 in. Wears bangles, necklace and scarf in same manner as nos. 8 and 9, leaving front of body bare. Hands raised in front of breast, the left hand holding bird. Head and parts of legs missing. Although the figure is in the round, the back is flat and unmodelled. Early Gandhāra School. Same date as preceding. Cf. p. 147 *supra*; *A.S.R.* (1924), Pl. XII, 9. Sk. '24–481; Block B; sq. 37·44'; stratum II. (Pl. 213, no. 10.)

11. Volute bracket of pale chloritised mica schist in the form of a winged male figure springing at the hips from an acanthus leaf base. Length 6·62 in. The figure wears a sleeved tunic, shawl and Indian turban and cylindrical ear-ornaments of Indian design. His two hands are raised in adoration in front of his breast. On the back and tenon of the bracket is a Kharoshṭhī inscription: *Savatratena niyatito vihare matapitu puyae Devadato* = 'Presented by Sarvatrāta in the Vihāra, in honour of his mother and father, Devadatta'. The letters are said by Prof. Konow to be of about the same age as the inscriptions on the silver vessels from Sirkap ('Silver-ware', ch. 29, nos. 2, 10, 13, 19), i.e. *c.* A.D. 30–40—a date which is also borne out by the findspot and style. Early Gandhāra School. Observe the characteristic treatment of the drapery, arranged in schematic folds. Cf. p. 171 *supra*; *A.S.R.* (1926), p. 118, no. 8 and Pl. XXVIII, 9; *Ep. Ind.* vol. II, pp. 99–100, and Pl. XIX. Sk. '26–1,457; Block J; sq. 148·51'; stratum II. (Pl. 213, no. 11.)

12. Seated, herm-like male figure of chloritised mica schist. The figure, which served perhaps as a bracket, wears a shawl over both shoulders, necklace and heavy ear-rings. The right hand is half raised, holding a bowl; the left is apparently resting on the seat. Height 4·62 in. Early Gandhāra School. First half of first century A.D. Sk. '16–1,160; Block C; sq. 42·63'; stratum II. Cf. p. 148 *supra*. (Pl. 213, no. 12.)

13. Head in high relief, of chloritised mica schist. Height 3·12 in. In place of hair, the face

is framed in a wig-like head-dress of lotus leaves like no. 161 (*q.v.*). For the round, staring eyes, characteristic of the earliest Gandhāra sculptures, see pp. 693–4 *supra*, and cf. nos. 3, 4, 135; also 'Stone Objects', ch. 25, nos. 63, 64, 66, 70, 74, etc. Sk. '24–791; Block C; sq. 46·46'; stratum III. Cf. p. 149, no. 8 *supra*. (Pl. 213, no. 13.)

14. Fountain-head of chloritised mica schist in form of grotesque male Kubera-like figure, seated cross-legged on thin rectangular base. Height 5·87 in. The figure wears curly beard and moustache and bracelet on right wrist. There are holes in mouth, ears, navel and top of head for the discharge of water. Early Gandhāra School. First half of first century A.D. Cf. p. 167 *supra*; *A.S.R.* (1926), p. 118, no. 16. Sk. '26–3,398; Block H; sq. 120·49'; stratum II. (Pl. 213, no. 14.)

15. *Makara* head in relief of Tarakī sandstone, possibly from a pediment. Height 11·5 in. Two sides are slightly curved and the back has been scooped into a bowl. Like nos. 6 and 7, local Taxilan work. Probable date, between 50 B.C. and A.D. 50. Dh. '15–1,071. From outlying debris.

16. Volute bracket of quartz schist in the form of a winged female figure springing at the hips from an acanthus leaf base. Length 13·5 in. The figure wears a close-fitting, long-sleeved garment, large circular ear-ornaments, bracelet, ornamented torque and long flexible necklace falling between the breasts. The hands hold in front of the body an offering, seemingly of fruit. A narrow *taenia* across the forehead allows a flat schematic dressing of the hair on the brow, but above this the elaborately treated hair falls backward to the shoulders. There is a circular ornament in the centre of the hair above the fillet. The style is early Gandhāran but not so early as the brackets from Sirkap. Probable date, second half of first century A.D. Cf. no. 11 *supra*. This bracket and no. 17 *infra*, as well as two others of similar style and of the same stone, are probably from the same structure. Dh. '17–97; mon. court A; 3 ft. 6 in. below surface. Cf. p. 278 *supra*; *A.S.R.* (1917), Pl. IV, *b*. (Pl. 213, no. 16.)

17. Volute bracket of quartz schist in the form of a winged male figure springing at the waist from an acanthus leaf base. Length 11·12 in. A loose scarf passes over the left shoulder, its lower end hidden by the acanthus foliage. The arms and features are defaced, as is part of the head-dress, bound above the forehead by a fillet with centre ornament, above which rises an acanthus leaf merging into the volute. The latter takes the form of a bundle of logs (?)—a motif commonly adopted for the capitals of pillars in the early rock-hewn temples of Western India. The figure wears an ornamented collar and torque, which passes over the scarf at the shoulder. The style is early Gandhāran and this sculpture is seemingly from the same structure as no. 16 (*q.v.*). Dh. '30–213; mon. court H; sq. 28·20'; 2 ft. 9 in. below surface. Cf. p. 286, no. 5 *supra*.

18. Winged male bracket figure of mica schist springing at the thighs from an acanthus leaf. Length 7·5 in. The figure wears a *dhotī*, scarf and turban with a large central ornament, heavy ear-rings, jewelled collar and long flexible necklace. The left hand grasps the scarf hanging over the left shoulder, the right hand rests on the hip. The voluted bracket against which the figure leans is fashioned to resemble a serpent with scaly surface and double head. Kunāla; cell E 8; 1 ft. above floor-level. Cf. p. 352 *supra*. (Pl. 213, no. 18.)

19. Bracket of phyllite in the form of a standing figure rising from the knees behind the forepart of a winged bull. Length 9·25 in. The garments, a *dhotī* and scarf, suggest a male personage. The only ornaments are a jewelled necklace and bracelets. The hands, now lost, appear to have been clasped on the breast. A much-defaced acanthus leaf embellished the chest of the bull, the head being almost in the round, though the incurved horns are in relief. Kn. '32–292; outside B 28; 10 ft. below surface. Cf. p. 340 *supra*. (Pl. 213, no. 19.)

20. Bracket of mica schist bearing the much-defaced head of an elephant, of which only traces remain. Dh. '15–973; mon. court A; 7 ft. below surface. Cf. p. 278 *supra*.

21. Fragment of bracket of mica schist bearing the head of a bull. Length 5 in. Dh. '17–15; mon. court A; 4 ft. 6 in. below surface. Cf. p. 278 *supra*.

22. Jamb of lower portion of a false niche, of phyllite. Tenons on top and bottom to fit into the now missing parts. Height 22·75 in. On the inner edge are six small superposed panels separated by various narrow foliated mouldings and each containing either a small naked amorino (*yaksha*) or a layman in an attitude of adoration or holding a flower. To the right of these are five larger superposed panels between Indo-Corinthian pilasters and separated by similar foliated mouldings; in each are two figures in varied attitudes of adoration, the head being generally to the left, towards the image occupying the centre of the composition. A border of alternately sunk chequers edged by lotus-leaf moulding is to the right of these. Dh. '12–L 60. Cf. p. 251 *supra*. (Pl. 214, no. 22.)

23. Jamb of lower portion of false niche, of mica schist. Tenon on right edge to fit into missing centre part. Height 26·5 in. On outer edge is a moulding of conventionalised lotus buds and, to the right, five superposed panels between Indo-Corinthian pilasters stand on acanthus or other ornamental frieze. In each panel are two standing male figures in diverse attitudes. Only the figures in two panels are fully preserved. On the inner edge is a border of three rows of bead-and-reel ornament alternating with foliate pattern and with a lotus edging. In design and workmanship this jamb is far superior to, and substantially earlier than, no. 22. Dh. '13–2,009; B 5, south wall; 2 ft. 6 in. below surface. Cf. p. 249 *supra*. (Pl. 214, no. 23.)

24. Fragment of phyllite showing a columnar series of figures each mounted on the shoulders of the one below, who grasps him by the ankles. Height 20 in. Traces of five figures of this remarkable column remain, the heads of the only two preserved being turned half-right towards the now lost centre of the composition. Necklaces and ear-rings indicate that the figures are laymen, though the uppermost seems to have had a shaven head. A unique specimen. Dh. '12–87; D; 4 ft. below surface. (Pl. 214, no. 24.)

25. Fluted pilaster of phyllite in four pieces. Height 52·5 in. Close-coupled, half-round fillets separate the five flutings of the semi-cylindrical shaft, the flutings being equal in width to the coupled fillets. Moulded base. Quasi-Corinthian capital embellished with acanthus foliage and stems in low relief. The fluted shaft is of special interest in connexion with the medieval fluted columns of Kashmīr temples. Dh. '14–19; S 3; 3 ft. below surface. Cf. p. 249 *supra*. (Pl. 214, no. 25.)

26. Fragment from edge of lower part of false niche, with moulding of stiff conventionalised foliated design. Cf. *A.G-B.G.* fig. 233. Of phyllite. Height 15 in. Dh. '13–458; L; 1 ft. 9 in. below surface. Cf. p. 251 *supra*.

27, *a*, *b*, *c*, *d*. Four small capitals of phyllite. The domical tops of nos. *a*, *b* and *c* are ornamented with acanthus foliage; the under part with conventional lotus stamens. No. 27, *d* has its base ornamented with an expanded lotus. On its upper edge is a bead-and-reel moulding of decadent form with two fasciae above. Cf. p. 251 *supra*.

a, *b*. Dh. '13–828; L; 4 ft. 9 in. below surface. Height 3 in.

c. Dh. '13–869; L; 5 ft. below surface. Height 3 in.

d. Dh. '12–C 283. Height 2 ft. 6 in. (Pl. 214, no. 27, *a*, *b*, *c*, *d*.)

28. Small bell capital of micaceous schist consisting of a reversed dome surmounted by a cylinder. Height 5·25 in. The under part is ornamented with lotus leaves and stamens. (Cf. no. 27, *d*.) The cylinder is divided by Indo-Corinthian pilasters into panels containing honeysuckle ornament or female busts in niches resembling a *vihāra* with pointed roof. Saw-tooth ornament below the cylindrical portion. An attached fragment to right. Dh. '13–294; L; 5 ft. below surface. Cf. p. 251 *supra*. (Pl. 214, no. 28.)

29. Capital of mica schist consisting of a reversed truncated pyramid with plain oblong abacus. The pyramidal portion is embellished by five parallel rows of bead-and-reel moulding separated by narrow fillets. Size 9·25 × 9 × 4·25 in. Cf. no. 30 *infra*. Dh. '12–C 255. (Pl. 214, no. 29.)

30. Half of a small capital of mica schist, roughly in the form of a reversed truncated pyramid;

each lower corner is relieved by a single boldly carved acanthus leaf. Cf. no. 29 *supra*. Height 3·37 in. Dh. '12–256.

31. Part of small capital of phyllite, having square base ornamented with flat bead-and-reel moulding and surmounted by a modillion cornice. Length 5 in. Mm. '27–19; cell 7. Cf. p. 362, no. 7 *supra*.

32. Voluted end of acanthus capital of phyllite. Length 12·75 in. Dh. '15–60; mon. court A; 2 ft. below surface. Cf. p. 278 *supra*.

33. Part of capital of phyllite in the form of pairs of addorsed bulls. The heads and lower limbs missing. Trappings on neck and along the flanks. Length 12·12 in. Dh. '30–245; mon. court H; sq. 24·23'; 2 ft. 8 in. below surface. Cf. p. 287, no. 6 *supra*.

34. Fragment of capital of phyllite with the heads of four lions springing from acanthus foliage. Around and between the lion heads are beaded garlands. The modelling is rough and crude. There is a tenon on the upper surface. Height 4·5 in. Dh. '12–637; between L and D 3; 4 ft. 4 in. below surface. Cf. p. 251 *supra*.

35. Lower part of a pseudo-Corinthian capital of phyllite, with well-modelled acanthus foliage. Traces of volute on top edge. In the centre, a Buddha is seated in *dhyāna-mudrā*, on a full-blown lotus. (Cf. Smith, *History of Fine Art*, Pl. XXV.) Length 32 in. Dh. '12–795; between L and D5; 5 ft. 6 in. below surface. Cf. p. 251 *supra*. (Pl. 214, no. 35.)

36. Upper part of a pseudo-Corinthian capital of phyllite with large projecting and out-curving acanthus in the centre and usual acanthus foliage on either side towards the volutes. Spray of eglantine, with two five-petalled blossoms, on edge of abacus. Length 36·75 in. Dh. '12–712; between L and D5; 5 ft. 3 in. below surface. Cf. p. 251 *supra*.

37. Fragment from right of relief of phyllite consisting of part of a framed Indo-Persepolitan pilaster and the extreme edge of the relief. Height 15·12 in. Of the relief only traces of a standing haloed figure with the left arm tensely extended by the side are now preserved. For its base the pilaster has a square-stepped pedestal supporting a water-pot.[1] The shaft is round and tapering and between it and the capital is a necking of three projecting fillets. The capital is bell-shaped with mushroom dome above. The surface of the bell is adorned with acanthus leaves reversed.[2] A slight roughness of the surface of the shaft may indicate the former existence of a relief such as can be seen in nos. 38 and 39. Between the main relief and the pilaster is a beaded moulding. Dh. '16–792; G 4; 3 ft. below surface. Cf. p. 257, no. 3 *supra*. (Pl. 215, no. 37.)

38. Part of a framed Indo-Persepolitan pilaster of phyllite of the same type as no. 37 *supra*. Height 11·25 in. The rectangular base is lost, but the capital is complete, consisting of two addorsed humped bulls with what appears to be the head of a third affronté between their hind-quarters and supporting a rectangular die with a winged lion at each corner. The shaft is embellished by a naked little *yaksha* standing on a roughly indicated lotus, with left hand on hip, the right holding flowers (?). The bell capital is decorated with acanthus leaves and the false capital above it with foliate or geometric designs. On top and left edges respectively are saw-tooth and reel-and-bead mouldings. Dh. '12–C 224. (Pl. 215, no. 38.)

39. Framed Indo-Persepolitan pilaster of phyllite, of the same type as no. 38 *supra*. Height 9·25 in. The base is missing as well as the edge mouldings. A small standing *yaksha* figure on the shaft as in no. 38 *supra*, but without the lotus base. Dh. '30–134; mon. court H; sq. 29·22'; 3 ft. below surface. (Pl. 215, no. 39.)

40. Pseudo-Corinthian pilaster of phyllite from the right of a relief. Height 13 in. From a moulded base rises a short, broad, slightly tapering shaft with an acanthus capital. Part of the base and all the upper portion of the capital are defaced. In low relief on the shaft is the figure of a fully clad layman facing left, his hands joined in the attitude of adoration. Cf. nos. 38, 39 *supra*. Dh. '16–463; mon. court A; 7 ft. below surface. Cf. p. 278 *supra*.

[1] This type of base (*adishṭhāna*) is common in monuments of the Early Indian School. Sometimes we find the stepped pedestal alone; sometimes the water-pot without the pedestal. [J. M.]

[2] Cf. Foucher, *A.G-B.G.* I, p. 226, fig. 105, and p. 158 *supra*.

41. Frieze (?) of phyllite ornamented with a diaper of narrow intersecting fillets forming a series of squares and half squares in diamond form, each containing the whole or half, respectively, of a fully expanded four-petalled flower, save in one instance where the petals are five. Cf. *A.G-B.G.* I, fig. 213. Length 19·75 in. Dh. '12–211; between L and D3; 3 ft. 6 in. below surface. Cf. p. 251 *supra*.

42. Mutilated fragment of relief of phyllite, with the upper part of the halo of an image and the mango (?) foliage over it. Height 7 in. Dh. '13–501; L; 3 ft. 9 in. below surface. Cf. p. 251 *supra*.

43. Fragment of phyllite resembling no. 42 *supra*. Traces of the haloed head of the Buddha with pipal stems and foliage above. A fracture to the right of the halo marks where there was a head of an attendant figure. The halo is embellished by an incised line parallel and close to its edge. Probably from a relief depicting the Enlightenment. Height 10·25 in. Dh. '12–197; L; 5 ft. 7 in. below surface. Cf. p. 251 *supra*.

44. Fragment of relief of phyllite showing traces of a defaced kneeling figure. The upraised right hand is touching some foliage which resembles conventionalised *aśoka* leaves. Height 6·75 in. Dh. '13–70; between L and D3; 5 ft. 6 in. below surface. Cf. p. 251 *supra*.

45. Fragment of relief of phyllite with pipal foliage. Length 9·25 in. Cf. no. 43 *supra*. Jn. '16–F2; north of stūpa D3. (Pl. 215, no. 45.)

46. Fragment of relief of phyllite with seven celestial flowers, in high relief, composed of leaves arranged schematically round a central boss from which hangs a beaded necklace. Such blossoms appear occasionally in the more elaborate compositions depicting the miracle of Śravasti.[1] Cf. Lahore Museum, no. 572. Rising *à mi-corps*, behind the lowest flower, a haloed Bodhisattva appears with hands raised in front of his breast. Height 7·87 in. An incised line parallel and close to the edge of the halo, as in no. 43 *supra*. Jn '16–117; north of stūpa D3; 3 ft. below surface. Cf. p. 384 *supra*. (Pl. 215, no. 46.)

47. Fragment of relief of phyllite with pipal leaves and stems, above which and separated by a slightly curved fillet is a frieze of five-petalled roses, of which only two, separated by a modified honeysuckle ornament, are preserved. Presumably from an 'Enlightenment Scene'. Height 14 in. Dh. '13–971; eastern stairs of Main Stūpa.

48. Fragment of relief of phyllite with four large unidentified flowers consisting of a ring of long narrow petals with large boss resembling a raspberry. As one boss is divided, these blossoms, like those on no. 46 *supra*, may be of a celestial character, though the treatment of the pipal on no. 49 *infra* shows that even natural forms may be depicted fancifully. Height 5·25 in. Dh. '15–281; E 2; 8 ft. below surface.

49. Fragment of a relief of phyllite with pipal stems and foliage treated conventionally. The leaves are arranged schematically round central bosses, resembling somewhat those in no. 48 *supra*. Length 8·25 in. A similar treatment of pipal foliage occurs on relief no. 13 of the Sīkrī Stūpa, Lahore Museum. Cf. *A.G-B.G.* fig. 210. Dh. '13–1,689.

50. Fragment from upper right of a relief of phyllite. Height 7·5 in. On upper edge, between two fillets, is a band of conventional foliage in low relief. Below this is the upper part of a *sal* tree, part of its trunk appearing in higher relief. The fragment is probably from a scene of the Parinirvāṇa or immediately subsequent events. Cf. *A.G-B.G.* figs. 284, 286. Dh. '13–93; D5; 2 ft. 8 in. below surface; probably from building L.

51. Frieze (?) of phyllite, which has been cut to fit into a triangular space. Length 16·5 in. Cf. no. 59 *infra* and *A.G-B.G.* figs. 119–23. On the lower edge is a narrow lotus moulding between fillets, the rest of the area being filled with a vine scroll arranged in circles, which are knotted at the points of contact. Dh. '15–1,201; mon. S, Tr. 2; 10 ft. below surface. (Pl. 215, no. 51.)

52. Frieze of phyllite. Length 10·5 in. Between fillets on upper and lower edges is a bold

[1] These jewel-bearing flowers are obviously inspired by the Indian 'Tree of Fortune' (*kalpa-vṛiksha, kalpa-latā*) so frequently depicted on the monuments of Barhut and Sāñchī.

design, now somewhat defaced, of vine stems arranged in roughly circular form, the interior spaces being filled with vine leaves and bunches of grapes, the exterior with bunches of grapes or tendrils. Dh. '16–193; north of Q1; 3 ft. below surface.

53. Cornice of phyllite. Length 26·75 in. On face, running vine scroll embellished with leaves and tendrils, between raised fillets; above, flat bead-and-reel moulding. Dh. '13–205; M3; 5 ft. below surface. Cf. p. 258 *supra*. (Pl. 215, no. 53.)

54. Fragment of phyllite cornice. Length 14·5 in. Below a broad fillet is a frieze of acanthus leaves; above, a narrow fillet and bead-and-reel moulding. Cf. *A.G-B.G.* fig. 115. Dh. '12–89; D5; 4 ft. below surface. Cf. p. 249 *supra*.

55. Fragment of phyllite frieze. Length 4·75 in. Between two broad fillets is an undulating pipal stem with offshoots in roughly circular form as in no. 53 *supra*, the enclosed spaces each containing three pipal leaves. Pipal leaves springing from the encircling stems fill the exterior spaces between the stems and fillets. Cf. *A.G-B.G.* fig. 95. Mm. '27–30; south side of stūpa II. Cf. p. 362, no. 5 *supra*.

56. Fragment of phyllite frieze. Length 5·75 in. Enframed in a broad, plain edging is an undulating floral scroll of conventionalised honeysuckle pattern. Dh. '12–1,059; between L and D3; 2 ft. 5 in. below surface. Cf. p. 251 *supra*.

57. Fragment of phyllite frieze. Length 8·25 in. Framed in a plain, flat edging is an undulating vine stem, with large leaf filling each of the spaces above and below the undulations. Cf. no. 56 *supra*. Dh. '12–358; between L and D5; 4 ft. below surface. Cf. p. 251 *supra*.

58. Fragment of phyllite frieze. Length 8·87 in. A projecting border at the bottom is adorned with a saw-tooth moulding, two fillets, a beaded moulding and a bead-and-reel moulding. Above this border the face of the frieze is embellished with an elaborate, but crudely executed design of unusual form. Its most striking feature is a row of peacocks, of which two only are preserved, standing *en face* with outspread tails. Around each is a beaded lozenge and leaf ornament, and between them is an uncommon design of two slightly converging bands made up of two fillets enclosing beading and crossed horizontally by a double beading and a cylinder, through which the beading seems to pass. In the lower division is a conventional flower; in the upper, a crescent supporting eglantine. On the left are traces of beaded lozenges and foliage but different from the ornament between the peacocks. Both design and technique are uncommon and the lavish use of beading suggests extraneous influence. Such beading is a familiar feature of the early Gupta art of Hindustān. Dh. '13–698; N4; 3 ft. 6 in. below surface.

59. Triangular relief of phyllite. Length 11·62 in. On lower edge, roll and stepped base moulding; on right, bevelled pilaster. In the triangular space and facing right is a spirited relief of a cock with long hackles. Cf. *A.G-B.G.* figs. 119–23. Akhaurī (Chir Tope B) '21–84; from debris in front of Main Stūpa. Cf. p. 317 *supra*. (Pl. 215, no. 59.)

60. Fragment of phyllite with figure in high relief of a winged dragon, the body in coils, the underside scaly, the ends of the double tail treated as if of foliage. The slightly opened mouth displays saw-like teeth. Length 10·5 in. For the winged dragon, cf. Pl. 145, nos. 77, 83–6, and Pl. 146, no. 88. Dh. '12–C 218. (Pl. 215, no. 60.)

61. Fragment of voluted end of bracket. Cf. fig. 18 and *A.G-B.G.* fig. 47. Of phyllite. The volute is composed of a *garuḍa* head, turbaned, with scaly neck. Length 6·3 in. Kn. '31–422. Behind A 12; 4 ft. below surface.

62. Panel of mica schist with three standing, naked amorini (*yakshas*). The one in the centre plays a four-stringed lute, the others clap their hands to the music. Height 7·8 in. Torus moulding between fillets on the upper edge. The lower face of the stone is plain. On top is a tenon. Cf. *A.G-B.G.* figs. 339–40. Kn. '31–152. Octagonal chamber A1 (west); 5 ft. below surface. Cf. pp. 328–9 *supra*. (Pl. 216, no. 62.)

63. Panelled pilaster of phyllite. On face, within framing, a conventionalised palm tree, and, in front, figure of a naked amorino (*yaksha*), dancing with upraised right hand. Beneath

his feet, a pedestal of the 'water-pot and stepped base' pattern commonly called 'Indo-Persepolitan'. Cf. nos. 37–9 *supra* and nos. 64–70 *infra*. On the top edge is a tenon. Height 9·12 in. Dh. '16–239, *a*; mon. court A; 2 ft. 6 in. below surface.

64. Panelled pilaster of phyllite similar to preceding, but the amorino is kneeling on one knee and there is no pedestal beneath him. Cf. also nos. 65–70 *infra*. Tenon on top edge. Height 9·12 in. Dh. '16–239, *b*; mon. court A; 2 ft. 6 in. below surface. Cf. p. 278 *supra*.

65. Panelled pilaster of phyllite. In framing, male figure, with wig-like hair and naked save for necklaces. He stands on an Indo-Persepolitan pedestal with feet crossed at the ankles. The left hand is on the hip and the right upraised to touch a lower leaf of a conventional palm tree which fills the upper space. Cf. nos. 63 and 64 *supra*. Height 9·75 in Dh. '12–1,246; between L and D 3; 4 ft. 6 in. below surface. Cf. p. 251 *supra*.

66. Panelled pilaster of phyllite of the same type as nos. 64 and 65 *supra*, showing a small naked figure with hands on the breast and standing, facing, on an Indo-Persepolitan pillar base, with foliage of a conventionalised palm tree above the head. The hair, dressed in a topknot, falls on either side over the ears. Height 10·25 in. Dh. '12–1,246; between L and D5; 4 ft. 6 in. below surface. Cf. p 251 *supra*.

67. Panelled pilaster of phyllite, with male figure standing on an Indo-Persepolitan pillar base. His hands are clasping an offering, his face turned half-right towards the missing central figure. An elaborate head-dress with high circular frontal ornament, heavy ear-rings, necklace and bracelets indicate a person of good caste. The leaves of the foliage above his head are arranged schematically around a central cone, as in no. 49 *supra*. Height 10·25 in. Dh. '12–C 150. (Pl. 216, no. 67.)

68. Panelled pilaster of phyllite with female (*yakshiṇī*) standing on an Indo-Persepolitan pillar base, her face turned half-left, right hand on hip, left arm bent; the upraised hand touches the foliage which fills the top of the panel; the legs are crossed with the right foot advanced in front. The figure, clothed from the waist, also wears a light scarf across the shoulders, the ends of which fall gracefully on either side. The ornaments are ear-rings, collar and a flexible necklace, falling between the breasts, bracelets and heavy anklets. The hair, dressed close to the head, is crowned by a chaplet resembling that worn by the adoring female standing by the left shoulder of the Buddha in no. 121 *infra*. Cf. *A.G-B.G.* fig. 338. Height 8 ft. 3 in. Kn. '31–154; octagonal chamber, A1, west; 5 ft. below surface. Cf. pp. 328–9 *supra*. (Pl. 216, no. 68.)

69. Fragment of phyllite from left of relief depicting the Hymn of the Nāga Kālika. Cf. *A.G-B.G.* figs. 194–6. Of this scene only part of the ornamental balustrade of the Nāga's abode and the figure of the Nāga Suvarnaprabhāsā, rising *à mi-corps* above it, are now preserved, but the panelled pilaster flanking it is almost intact and shows a female (*yakshiṇī*) standing on an Indo-Persepolitan pillar base. The face is turned half-right, right hand on hip, left arm bent with upraised hand touching a leaf of the foliage which fills the upper part of the panel. The figure is clothed, like that in no. 68 *supra* (Pl. 216, no. 68), and wears similar ornaments, save that the necklace is of beads. The hair, too, is treated in the same way except for a double plume in the centre of the chaplet. Cf. *A.G-B.G.* fig. 339. Edging the panel on either side is a bead-and-reel moulding. Height 7·9 in. Kn. '32–322–A1. Cf. pp. 328–9 *supra*. (Pl. 216, no. 69.)

70. Panelled pilaster of phyllite with male figure standing on an Indo-Persepolitan pillar base under the foliage of a conventionalised palm tree. Height 9 in. The figure wears a tunic reaching to the hips and, below this, a garment like a full skirt, which falls to the ground and displays only the front of the feet, seemingly shod. The hair is dressed in a peak resembling a Phrygian cap. The hands joined on the breast hold a musical instrument of the clarinet type. Dh. '13–968; L; 5 ft. below surface. Cf. p. 251 *supra*. (Pl. 216, no. 70.)

71. Fragment of a large composition, perhaps from the lunate interspace of a false window. Above a curved chaplet moulding stands a haloed male figure in low relief facing half-right, with his hands, much defaced, clasped in adoration. The figure is clothed in a garment falling

to the ankles but leaving the right shoulder and right-half of the chest bare Ear-rings, a necklace and armlet on the upper right arm are the only ornaments. The almost feminine delicacy of the features, the high-dressed hair and the halo all point to the figure being a *deva*. Of phyllite. Height 12·75 in. Dh. '16–238; mon. court A; 2 ft. 6 in. below surface. Cf. p. 278 *supra*.

72. Fragment of frieze of phyllite. Length 15 in. The projecting cornice at the top is relieved, on its face, with a saw-tooth moulding and double foliate bands between fillets. Below the cornice, three little amorini (*yakshas*), naked save for necklaces and anklets, support on their shoulders an undulating garland decorated with varied foliate designs and bound by ribbons with flowing ends. The attitudes of the amorini are varied, one facing left, the centre one half-right, while the third, which is now defaced, appears to have faced right. Their hands pass over the top of the garland to hold it securely on the shoulders. Hanging from each of the two bottom loops of the garland is a bunch of grapes, the left one of which is being pecked by a parrot on either side, while two tiny but well executed, naked, squatting amorini are picking the grapes from the other. In the right upper space behind the garland appears the bust of a winged *devi*, and in the corresponding space to the left the busts of a male and a female, half turned to face each other. See pp. 328–9 *supra* and cf. nos. 73–5 *infra* and *A.G-B.G* figs. 116–18. Kn. '31–127; octagonal chamber, A1; 2 ft. below surface. (Pl. 216, no. 72.)

73. Fragment of frieze, of phyllite. Length 22·5 in. Below a defaced scroll of vine leaves, three amorini (*yakshas*) support on their right shoulders an undulating garland decorated with varied foliate designs and bound by ribbons with flowing ends. The amorini on the right and left are naked save for necklaces and anklets; they face left, with left arm extended, and hand resting on the front of the garland. The middle amorino, facing half-right, holds in the left hand a tankard. All the amorini have shaven heads save for a little tuft of hair above the forehead. From the bottom loop of the garland hangs a bunch of grapes half-hidden in large vine leaves. Cf. no. 72 *supra*. In the upper right space behind the garland a winged *deva* faces half-right with a tankard in the right hand, and in the corresponding space to the left is another winged figure, much defaced, with hands clasped in adoration. A fluttering parrot rests on the upper, right edge of the garland. Cf. *A.G-B.G.* figs. 116–18. Dh. '15–963; chapel B22. (Pl. 216, no. 73.)

74. Fragment of frieze showing two standing amorini (*yakshas*), naked save for necklaces, armlets and anklets, and supporting on their shoulders an undulating, foliated garland. Cf. nos. 72, 73 *supra*. The one to the right faces right and supports the garland on his left shoulder with the right hand in front of it. The other amorino, facing left, has the garland on his right shoulder, the left hand on his hip. In the right, upper space behind the garland is a much defaced, winged *deva* facing half-right, with an offering in his joined hands. In the corresponding space to the left is a defaced, winged *devī* with an offering in her left hand. Of phyllite. Length 19·37 in. Cf. *A.G-B.G.* figs. 116–18. Dh. '15–1,195; found in the debris south of P4. Cf. p. 267 *supra*.

75. Fragment of frieze with a half bead-and-reel moulding along lower edge, and above it an undulating foliated garland supported by amorini (*yakshas*), naked save for the usual ornaments. Cf. nos. 72–4 *supra*. Only one amorino is preserved, bearing the garland on his left shoulder and facing half-right. The figures in the upper spaces of the loops are defaced and unidentifiable. The technique is poor. The right edge shows a rough tenon. Of phyllite. Height 5·5 in. Dh. '14–491; chapel D5. Cf. p. 249 *supra*.

76. Fragment of phyllite frieze showing, beneath an acanthus cornice, four ogee arches resting on squat, pseudo-Indo-Corinthian pilasters. Cf. no. 77 *infra*. The arches are voluted at the springing and have saw-tooth mouldings on the front face. They represent the open fronts of structural *caityas* and show the ends and part of the long beams of the barrel roof. These are plainly seen in the interiors of the two arches on the left. In those to the right only the ends of the beams are seen on the underside of the arches. On the haunch of each arch rests a long-tailed parakeet, its head turned to face its fellow on the adjoining arch. On the outer

ends they face inwards. In the second arch from the left the Buddha, haloed, is seated on a grass-strewn throne, in meditation. In the arches to left and right standing male personages, of high caste, turn towards him, the one to the left as though about to scatter flowers, the other to the right with hands joined in adoration, and the end figure with open hand held near the shoulder, as if saluting. Length 22 in. Kn. '32–149; H6; 1 ft. below surface. Cf. p. 341 *supra*. (Pl. 217, no. 76.)

77. Fragment of phyllite frieze showing two ogee arches, springing side by side from dwarf pseudo-Corinthian pilasters, the shafts of which are relieved with a long, narrow, incised, panel. The arches are simpler than those in no. 76 *supra*, having no end volutes and showing no beam-ends, but they have the same saw-tooth moulding, and parakeets are seated on the arch haunches facing inwards. Under the right arch stands a haloed Buddha, facing, in *abhaya-mudrā*. Under the other arch stands a female with left arm (defaced) raised level with the shoulder and face turned half-right towards the Buddha. She wears a long tunic reaching to the ankles and over it a *himation* draped over her left shoulder and leaving her right shoulder and breasts free. Her hair is dressed high, and her ornaments comprise ear-rings, necklace and heavy anklets. On the left a curved bead-and-reel moulding indicates some variation in this part of the relief which is now broken. Length 10·8 in. Kn. '31–101; square chamber, A1; 2 ft. below surface. Cf. pp. 328–9 *supra*. (Pl. 216, no. 77.)

78. Fragment of frieze of chloritised micaceous schist. On the upper edge is a richly carved vine scroll of great beauty (cf. nos. 51–3, 57), and below it three segmental arches with dental mouldings springing from dwarf pseudo-Corinthian pilasters (cf. nos. 76, 77). In the triangular spaces between the adjacent arches is a bird, facing with outspread wings, and under each arch the bust of a clothed male figure, facing. The centre one has long hair, parted in the middle, and hands raised level with the breast. The figure to the left is in a similar attitude but wears an elaborate turban. The features of the right figure are defaced. Material and style indicate an early date for the fragment. Length 6·5 in. Dh. '12–1,042; between D3 and L; 7 ft. 6 in. below surface. Cf. p. 251 *supra*. (Pl. 217, no. 78.)

79. Fragment of phyllite from end of cornice, with a band of ornament consisting of three conventional honeysuckles alternating with *kīrtimukha* (?) heads. Cf. no. 80 *infra*. Below this are the remains of six Kharoshṭhī characters, seemingly *sa ba so - - dre te na - - - -*. Length 11 in. Dh. '12–C308. (Pl. 217, no. 79.)

80. Fragment of hornblende schist from the end of a cornice, adorned with conventional honeysuckle and *kīrtimukha*, head to left. The *kīrtimukha* has puffed out cheeks, protruding eyes and pointed ears. In technique and style it resembles no. 79 *supra*. Length 7 in. Dh. '13–260; L; 1 ft. 4 in. below surface. Cf. p. 251 *supra*. (Pl. 217, no. 80.)

81. Fragment of cornice and frieze of grey-green micaceous schist. On face of projecting cornice, bands of bead-and-reel and lotus-leaf pattern. Cf. *A.G-B.G.* figs. 10, 137. Below cornice, a double knot of vine stems forming a *nodus herculeus*, with a four-petalled rose in each of the spaces between the intertwining stems. To the right the stems terminate in vine leaves and a tendril. Length 7·25 in. Dh. '13–1,882; from debris south of N4.

82. Fragment of phyllite cornice with saw-tooth moulding supported by five modillions, their curved surfaces embellished by two incised parallel lines. Cf. nos. 83 and 84 *infra* and *A.G-B.G.* fig. 73. Length 15·87 in. Dh. '12–C333.

83. Fragment of phyllite cornice with saw-tooth moulding, supported by four modillions, their curved surfaces relieved in the centre by a deep vertical groove. Cf. no. 82 *supra*. Length 6·62 in. Mm. '27–15; south of stūpa II. Cf. p. 362, no. 6 *supra*.

84. Cornice bracket of phyllite in the form of an Indo-Corinthian pilaster with acanthus capital, the shaft curved to resemble the letter S. The front of the curve of the modillion is embellished with a central fluting, in which lies a roughly sketched cable moulding. Such consoles are frequently found supporting the cornices of stūpas. Cf. *A.G-B.G.* figs. 73 and 114. Length 4 in. Dh. '12–C244.

85. Fragment of a large composition from a false gable-window consisting of parts of two of the arched frames with decorative devices between. The outer frame is enriched on its face with a saw-tooth moulding; the inner frame with a foliate pattern on its inside. Between the two is a conventionalised garland and part of the coils and leafy tail of a Triton—a creature commonly found in this position in false gable-windows. Cf. *A.G-B.G.* fig. 233. To the right of the outer frame are traces of stems and a six-petalled flower. Of hornblende schist. Length 21·5 in. Dh. '30–745; mon. court A; sq. 17·19'; 5 ft. 9 in. below surface. Cf. p. 278 *supra.*

86. Two fragments of phyllite from a false gable-window, comprising part of two arched frames and figures between. The inner frame has a cavetto lotus-leaf moulding on its face; the outer frame a saw-tooth moulding, of which only a fragment survives. Cf. *A.G-B.G.* fig. 233. In the corner between the two frames is a winged dragon with coiled tail, and higher up, near the apex of the arch, a figure seated in European fashion on a low circular cane seat with high, draped, round cushion. To the side of this seated figure is another standing figure clad from the waist downwards in a *dhotī*. The upper parts of both figures are destroyed. Cf. no. 85 *supra.* Height 14·5 in. Dh. '12–389; N 4; 3 ft. 6 in. below surface. Cf. pp. 262–3 *supra.*

87. Fragment of phyllite from the coffered ceiling of a portico with five square coffers in a row, each containing a human bust and each enclosed in a broad square frame in low relief. Observe that some of the corners of these frames are mitred like picture frames. The figure in the second panel wears a close-fitting cap with a fringe of curls showing under the edge above the forehead, and a large circular ear ornament pendent from the right ear, the left ear being hidden by the half-turned head. In the third panel the head is turned half-left and appears to be wearing a close-fitting cap concealing the ears. Although the faces are small and not perfectly preserved, they show great individuality, very different from the routine sameness of so many Gandhāra figures. Two rectangular mortice-holes (one partly destroyed) at the side of the coffers show how the slab was mortised into the wall. Length 22 in. Dh. '14–811; J 2; debris. Cf. p. 245 *supra.*

88. Curved fragment of phyllite, possibly from the drum of a small stūpa. Along the upper edge is a conventionalised garland, a broad band of flat fillet and saw-tooth moulding. Below, a broad band of acanthus foliage broken by a projecting *kīrtimukha* (?) head, much defaced. Length 15 in. Dh. '31–132; mon. court A; sq. 12·25'; 15 ft. below surface. Cf. p. 278 *supra.*

89. Draped female figure without head or arms, standing on a plain rectangular base with long vertical tenon. The figure appears to be wearing a long *chitōn* of fine texture, which falls in graceful folds to the feet, leaving the left leg bare. The top of it is seemingly folded over like a Doric *chitōn* and reaches as far as the hips. At the waist it is confined by a twisted band. The style is more distinctly classical than in the generality of Gandhāra sculptures and it may have been inspired by a Greek figure of Nike, but its Indian origin is betrayed by the muscular left leg and the heavy anklet. The statue is not worked at the back. Pieces of gold-leaf with which the stone was once covered are preserved under a later layer of lime plaster. Of pale grey schist. Height 15 in. Probably first century A.D. Dh. '14–314; east of Q 1; 3 ft. below surface. Cf. p. 254 *supra.* (Pl. 217, no. 89.)

90, *a*, *b*. Two fragments of panels depicting the Syama *Jātaka*. Unlike the representation from Jamālgaṛhī (*A.G-B.G.* fig. 143), the scenes in these panels converge towards the centre, the action proceeding partly from right to left and partly from left to right. Of no. 90, *b* the right end is broken, and of the drawing of water by Śyāma we see nothing, the action opening with the king of Benares in the fatal act of discharging his arrow to the left. He stands facing left, his back to the spectator, his attendant, behind him, holding a large quiver full of arrows. Rocks and sparse vegetation indicate the wildness of the region, and a wild animal's head is seen at the mouth of a cave below. The boy Śyāma is shown with the arrow transfixing his breast on the extreme right of no. 90, *a*. In this episode the king has placed aside, while he is hunting, the elaborate turban worn by him in subsequent scenes. A defaced figure, with hand upraised to a tree on the right of no. 90, *b* is part of the missing first scene.

90, *a*. On the extreme left are traces of the leaf hut (*parṇasāla*) in which appear the heads of Śyāma's blind parents, to whom the king brings tidings of their son's death. The king raises his right hand in the *chin-mudrā* (cf. no. 6 *supra* and Pl. 212, no. 6). He is then seen leading to their son's body the aged couple, whose blind helplessness is very cleverly depicted. From the right, a haloed deity (Indra) comes flying through the air; in his raised right hand is a flask of ambrosia which, with a baptismal gesture, he is pouring on Śyāma's head, and the boy is shown with uplifted hands already half-restored to life. Behind Indra stands the king, watching the resurrection. For a representation of the Śyāma *Jātaka* on the west gateway at Sāñchī, cf. Marshall and Foucher, *Monuments of Sāñchī*, vol. II, Pl. LXV, *a* and p. 225. Total length 2 ft. 11 in. Cf. p. 251 *supra*; *A.S.R.* (1912), Pl. IX, *a*. Dh. '12–479, 1,811; between L and D 3; 3–5 ft. below surface. (Pl. 217, no. 90, *a*, *b*.)

91. Panel of phyllite showing a haloed Bodhisattva seated in meditation on an expanded lotus. Though the head is adorned with the usual elaborate turban and heavy ear-rings are worn, the body is clothed to the neck like a Buddha figure. A defaced figure, on the right of the Bodhisattva, is seated in European fashion, the face turned towards the Bodhisattva and the hands clasped in adoration. There are slight traces of a figure to the right. This probably depicts the Bodhisattva in the Tushita Heaven at the moment when he makes the examination of the time, continent, country and family wherein he is to be born again for the last time. Cf. *A.G-B.G.* figs. 145, 349. Height 7·5 in. Dh. '15–1,093; south of N 5; 2 ft. below surface.

92. Relief depicting Queen Māyā's dream. On the extreme right and left is an ogee arch supported by Indo-Persepolitan pillars, the capitals of addorsed bulls. A curious feature is that, although the bases are shown, the circular shafts are absent and evidently never existed, as one base does not lie vertically below its capital. Between the two arches, its floor level with their capitals, runs a balcony, above the balustrade of which are seen the busts of two figures to the right, one of them defaced. Below the gallery, on a draped couch, its legs carved in the semblance of a horned animal affrontè, lies the sleeping Māyā, lying on her left side, her head on a pillow, her left hand under her head and her right resting on the near edge of the couch. Above her right side and in front of the balcony are traces of the circular disk on which was the Elephant of the Conception, but this and the left side of the balcony are now broken away. Under the balcony and at Māyā's head stands a female attendant; at her feet is a defaced guardswoman, armed with a spear. Under the arch to the right and with her back to the spectator another attendant stands holding a water-pot in her right hand, her upraised left hand resting on the bell capital of the pillar. In the corresponding arch to the left stands an attendant, facing, with legs crossed at the ankles; all above the waist is defaced. A small footstool is in front of the couch. The general arrangement of this scene closely resembles that of a sculpture from Jamrud (Lahore Museum, no. 567) which depicts the Sleeping Women. Cf. J. Burgess, *Anc. Monuments of India*, Pl. 127, and *J.I.A.I.* (1898), Pl. XII, 1. Of phyllite, of a paler variety than usual. Length 15·6 in. Cf. *A.S.R.* (1930–4), Pl. XCIV, *e*. Kn. '31–128; octagonal chamber, A1; 2 ft. below surface. Cf. pp. 328–9 *supra*. (Pl. 218, no. 92.)

93. Relief of phyllite depicting the *Samcodana* or 'Instigation of the Bodhisattva', by the gods, to leave the world. On a draped throne, in front of which is a footstool, sits the haloed Bodhisattva with his right hand upraised in the *abhaya-mudrā*; the left hand in the lap holds a flask. His robe is that of a Buddha. No jewels are worn and the hair is dressed above in a small double loop. Over the throne is a baldachin covered by a canopy with garland-like fringe and supported by columns of unusual form. These, for about two-thirds of their height, are of slender, tapering Indo-Corinthian type with acanthus capitals, their bases showing a lion *affrontè*. Above the acanthus capitals the columns are continued as thinner, tapering, circular shafts up to the canopy. On each capital and with one arm round the thin shaft is a little naked *yaksha*, leaning inwards; the one to the left holds up a defaced object in his right hand. On either side of the Bodhisattva a haloed deity is seated in European fashion with face turned towards him. Indra, to the left of the Bodhisattva, raises up his right hand as if in argument; Brahmā,

on the other side, clasps his hands in adoration or entreaty. Behind Brahmā are two standing figures, one a haloed deity, the other defaced; and behind Indra is a high-caste personage, whose hands, again, are clasped in front of the body. There are traces of a lost figure on the extreme right. Cf. *A.G-B.G.* figs. 164, *b*, 347, *a*, 348. Height 8·75 in. Cf. p. 251 *supra*; *A.S.R.* (1912), Pl. IX, *e*. Dh. '12–772; between L and D 5; 5 ft. 6 in. below surface. (Pl. 217, no. 93)

94. Image of the Buddha without head or hands, seated on a double lotus which rests, in turn, on a pedestal. The hands were probably in the *dharmacakra-mudrā*. The chief interest lies in the pedestal, which was supported at each of the front corners by the forefront of an elephant and adorned on its face by a bas-relief giving another rendering of the *Samcodana*. Cf. no. 93 *supra*. The elephant on the left is missing, but the rest of the figures are intact. In the centre of the relief the Bodhisattva, with a large halo and wearing ear-rings and an elaborate turban, is seated in meditation on a low throne with wide, spreading back. To his left, Brahmā is seated on a similar chair, in pensive attitude, his head resting on his right hand, his right elbow on his knee. Indra, with his hands clasped in entreaty, sits on a similar chair to the Bodhisattva's right. On either side of the central figure, between him and the seated gods, is a standing figure, the one on the Bodhisattva's left a monk, the other defaced. Cf. *A.G-B.G.* fig. 479. Of phyllite. Height 12·25 in. Cf. *Jauliāñ Mem.* Pl. XVIII, *b*. Jn. '16–F1; lower stūpa-court. Cf. p. 384 *supra*. (Pl. 218, no. 94.)

95. Fragment of curved relief, possibly from the right upper side of a false gable-window, depicting the *Samcodana* or Instigation. Cf. nos. 93, 94 *supra*. In the centre of the original panel, but on the left edge of the fragment, are traces of a haloed Bodhisattva, seated in European fashion on a chair, the back of which is well displayed. To his left is a haloed deity, presumably Indra, seated in easy attitude on a rattan seat, his right hand upraised entreating the Bodhisattva to leave the world. Behind the Bodhisattva are two defaced attendant gods. Of phyllite. Height 8·75 in. Cf. p. 267 *supra*; *A.S.R.* (1914), Pl. XIII, *d*. Dh. '14–239; P 7; surface debris.

96. Fragment, from left side of some large composition, showing a haloed deity or Bodhisattva, seated in European fashion on a chair, his bare feet on a low footstool, the front of which is embellished by five large roundels. The face is turned half-right and the right hand upraised in front of the breast. The figure wears the dress and ornaments common to *devas* and Bodhisattvas. Such figures occur in the more florid representations of the Miracle of Śrāvastī, but usually with a lotus under the feet. Cf. *A.G-B.G.* fig. 79. Of phyllite. Height 9·12 in. Kn. '32–321; A1; surface debris. Cf. pp. 328–9 *supra*.

97. Fragment of relief depicting a haloed Bodhisattva seated in an unusual attitude on an exceptionally high, draped throne, the bottom right edge of which shows traces of simple ornament. The right knee is bent, the foot resting on the throne; the left leg hangs in easy pose in front of the throne, the missing foot apparently resting on a footstool, now indicated by the fracture of the stone. The left hand lies in the lap, the right elbow on the right knee; the right hand is now lost. The missing face was probably turned half-left. In the background, on either side of the Bodhisattva, are two defaced, haloed deities; their clasped hands possibly held offerings. Traces of attendant figures, one haloed, are seen in the upper background. Of phyllite. Height 20 in. Cf. *A.S.R.* (1914), Pl. IX, *b*. Dh. '14–747; B17; 5 ft. 3 in. below surface. Cf. p. 249 *supra*.

98. Fragment from a large relief depicting the 'Sleep of the Women', probably the same from which nos. 99 and 100 *infra* also come. Cf. *A.G-B.G.* fig. 179. In centre is a female drummer, fallen asleep over her drum, one leg on either side of it and her head resting on her two hands on the top of it. The face is hidden but the head is crowned by a chaplet with a large lotus ornament in front, and a line of beads across the top of the head connects the front and back of the chaplet. Besides these, she also wears bracelets and ornamental flat anklets. To the right of the relief is the right leg and elbow of a second figure. Of phyllite. Height 13·5 in. Dh. '12–508; L; 3 ft. 9 in. below surface. Cf. p. 251 *supra*. (Pl. 218, no. 98.)

99. Fragment from a relief depicting the 'Sleep of the Women'. Cf. no. 98 *supra* The

fragment comprises three defaced female figures. The one on the right is seated on a low chair with ornamented back and cushioned seat, at the end of which is a narrow flounce with conventionalised folds partly concealing the wickerwork beneath. Her legs are crossed, the left above the right, and her head rests in her uplifted left arm; her right arm hangs by her side. The figure is fully clad and wears heavy ear-pendants, necklace, beaded girdle and large anklets. Behind her, in the upper background, a standing female holds in her left hand a six-stringed musical instrument, while to the left is another sleeping female with her left elbow on her knee, and her head resting in her hand. Of phyllite. Height 19·5 in. Dh. '12–2,209; south of J; 3 ft. 6 in. below surface. Cf. p. 251 *supra*. (Pl. 218, no. 99.)

100. Bust of a female figure, probably from the same relief as the foregoing. Her head is leaning slightly to her right, her eyes closed in slumber. The hair is dressed close to the side of the head but drawn up in a thick wave in the centre above the forehead. At the back it is confined by a jewelled bandeau twisted round the head and finishing above in a pointed end. In front, above the waved hair is a defaced ornament. The figure is fully clothed and wears an ornamented flat necklace. Under her left arm, she carries a small drum, or other musical instrument, supported by a cord over the left shoulder. Of phyllite. Dh. '12–2,347; between L and D5; 4 ft. 3 in. below surface. Cf. p. 251 *suprà*. (Pl. 218, no. 100.)

101. Fragment from a relief depicting the 'Flight from the Palace'. Only parts of the figure of the Bodhisattva and of the horse remain. The horse is shown in profile moving to the left, the head and legs are now lost. Of interest are the trappings, but the fracture of the stone renders their interpretation difficult. They include part of the bridle, a single rein, martingale, breast-strap and crupper. The rider sits well back in the saddle; the left hand is lost; the long robe on the near side falls in schematic folds below the saddle but exposes the quilted back portion. Of phyllite. Height 6·75 in. Cf. *A.S.R.* (1915), Pl. VI, 2. Dh. '15–1,082; from the outside debris.

102. Small headless image of the fasting Bodhisattva, seated in meditation, on a grass-strewn throne, of which the front has a saw-tooth moulding along the upper edge and fillet and ogee moulding on a squared plinth below. In order to reveal the results of his austerities, his robe is drawn open to expose the whole torso, but the emaciation is not very marked save for the narrow waist, and the treatment of the subject is characterless in comparison with such representations as Lahore Museum no. 2099, and Peshāwar Museum no. 799. Cf. *A.G-B.G.* figs. 200, *a* and 440. Of phyllite. Height 6·5 in. Kn. '31–560; front of A19; 6–8 ft. below surface. Cf. p. 332 *supra*.

103. Fragment from left of a relief depicting the 'Offering of the Grass'. On the extreme left is a circular, broken column against which lies a bundle of grass bound round by a rope, and on it what appears to be the right hand and arm of the grass-cutter, Svastika. Of phyllite. Height 5·75 in. Dh. '12–844; between L and D3; 5 ft. 7 in. below surface. Cf. p. 251 *supra*.

104. Fragment from the right side of a relief. The Buddha, who must have been the central figure, is lost. In the middle of the fragment is a figure in Kushān costume, wearing trousers, boots, a long coat of imbricated mail and an elaborate turban with high circular ornament, on the left side. His head is turned towards the now missing Buddha, whilst his feet rest on the back of a prone male. In front of his waist he holds a short sword, his left hand on the scabbard, his right grasping the hilt, as if about to draw it. Behind is a personage of high caste, his right hand upraised as if in salutation. On the left is a tall, fully clothed, wandering ascetic, with hair piled high, right hand also raised to the shoulder as in salutation, the left grasping a long staff (*khakkhara*) with a knob at the top. The relief presents some unusual features in the presence of the ascetic and the prone male figure. But of those who attack the Buddha—Aṅgulimāla, Āṭavika and Māra—only the last assumes the costume of a warrior (cf. *A.G-B.G.* figs. 201, 204, 404), while prostrate figures of his army are not unknown in scenes depicting his attack. Cf. *A.G-B.G.* figs. 203, 402. Of phyllite. Height 8·2 in. Kn. '31–106; A1, square chamber; 2 ft. 6 in. below surface. Cf. pp. 328–9 *supra*. (Pl. 219, no. 104.)

105. Fragment from left of a relief depicting Māra's attack. Cf. no. 104 *supra*. To the right, the haloed Buddha is seated on a grass-strewn throne under a pipal tree, his left hand grasping the edge of his robe, his right in *bhūmisparśa-mudrā*, the forefinger just touching the edge of the grass covering of the throne. On his right, Māra, defaced, is about to draw his sword from its scabbard. He no longer wears the dress of a barbarian warrior, but only a *dhotī* and a scarf over his left shoulder. Of his demon army, only a headless naked figure in the background and a curious dog-like animal standing on its hind legs, its back against the left edge of the panel, are preserved. Cf. no. 196 *infra*. By the right shoulder of the Buddha is a beardless Vajrapāṇi with *vajra* in left hand. Of phyllite. Height 7·8 in. Kn. '31–149; octagonal chamber, A1; 5 ft. below surface. Cf. pp. 328–9 *supra*. (Pl. 219, no. 105.)

106. Bust of one of Māra's demon army, from a relief depicting Māra's attack. The head of the figure is turned violently in line with and resting on the left shoulder. The rough hair is brushed up above the forehead and the coarse whiskers and beard, the wide staring eyes, heavy eyebrows, thick lips, broad heavy nose and knitted brows are in keeping with its demoniac character. The chest is bare save for a crossed breast-chain passing over the shoulders and connected in the centre of the chest by a circular medallion, embellished with a five-petalled rose. Cf. *The Monuments of Sāñchī*, Pl. XXIX. A fracture on the left side of the top of the head indicates the loss of some ornament or knot of hair. Of phyllite. Height 4·75 in. Cf. p. 251 *supra*; *A.S.R.* (1912), Pl. VII, *b*, 1. Dh. '12–959; east of L; 7 ft. 8 in. below surface. (Pl. 217, no. 106.)

107. Head of a barbarian figure from a relief. The face is turned right and, though less ferocious than that of the foregoing, the rough hair, beard, drooping moustache and coarse features make certain its identification as one of Māra's warriors. Of phyllite. Height 4 in. Dh. '12–1,118; between D 3 and L; 8 ft. below surface. Cf. p. 251 *supra*.

108, *a–m*. Group of small miscellaneous heads, broken off from various reliefs and comprising heads of the Buddha, Bodhisattva, Indra, Vajrapāṇi, lay worshippers and members of Māra's demon army. The laymen wear turbans of various types, Indra his characteristic high head-dress. Cf. nos. 149, 150 *infra*. Vajrapāṇi is of the bearded Jovian type, while Māra's demon attendant has a flat topknot with straggling locks falling over the ears. Dh. '13–503.

109. Head of phyllite, from a relief. The hair is dressed close to the head; the face is clean-shaven save for a moustache with drooping ends. Nose, lips and chin are damaged but the modelling is vigorous and the whole not displeasing. Despite the absence of the usual demoniac features, the face appears to be that of a barbarian, at least in the sense of being that of a *mleccha*. Height 5·25 in. Dh. '12–C 156.

110. A false gable-window with legends depicted in three panels. Cf. *A.G-B.G.* figs. 75, 183, 193, 458.

(*a*) The top panel is framed in an ogee arch voluted at the springing. Running round the outer edge of the frame is a saw-tooth moulding, and round the inner edge a beading. The incident represented in this panel is the descent of the Buddha at Sāṅkāśya from the Trayastriṁśa heaven. In the centre the Buddha stands, facing, right hand upraised in *abhaya-mudrā*. On his right are Indra and an attendant with hands clasped in adoration, and behind them, in the upper background, Vajrapāṇi. On the Buddha's left are Brahmā and an attendant, both with flowing locks in similar attitudes of adoration, and behind them one of Brahmā's entourage. Of the triple ladder of the descent there is no indication. It may be noted that the texts and both Fa Hien and Hsüan Tsang state that Indra was on the left side of the Buddha, but his characteristic head-dress (cf. nos. 147–50 *infra*) leaves no doubt as to his identification here on the Buddha's right. Between this panel and the central one is a frieze with saw-tooth mouldings on the lower and upper edges, and between them four small panels separated by Indo-Corinthian pilasters; in each panel is a five-petalled flower.

(*b*) The centre panel is rectangular with a half-ogee wing at either end. In the rectangular space is portrayed the 'Presentation of the four bowls', with the haloed Buddha seated

in *abhaya-mudrā* on a grass-strewn throne. Two of the Lokapālas stand on either side, each holding an alms-bowl. Under each of the half-arches a worshipper kneels on one knee, facing inwards with hands clapsed in adoration. Between this scene and the lowest panel is an acanthus frieze above a flat bead-and-reel moulding.

(*c*) In the bottom panel is shown the 'Entreaty to Preach', *Adhyeshaṇa*. In the centre, the haloed Buddha, face now lost, is seated in *abhaya-mudrā* under a tree on a grass-strewn throne, the front of which is ornamented by a diamond pattern with a boss in the centre of each diamond. On the right of the Buddha is a haloed deity, presumably Indra, though the head-dress is not so characteristic as it usually is; the corresponding position on the other side of the Buddha shows two headless figures intended for Brahmā and an attendant. Indra, Brahmā and the attendant have the hands clasped in entreaty. A defaced Vajrapāṇi is between the Buddha and Indra and in each upper corner of the panel is a haloed deity. On the top and sides of the panel is a flat foliate moulding. Of phyllite. Height 18 in. Cf. p. 362, no. 8 *supra*; *A.S.R.* (1915), Pl. XXIV, *c*. Mm. '15–111; cell 8. (Pl. 219, no. 110.)

111. Fragment from right side of a relief depicting the 'Offering of the four bowls'. Cf. no. 110, *b supra*. In the foreground, two of the Lokapālas, without haloes, face left towards the now lost Buddha, holding large alms-bowls in their hands. There are traces of at least two figures, one, with hands clasped on the breast, in the background. The feet of the Lokapālas and the faces of all the figures are now lost. Of phyllite. Height 17·75 in. Dh. '12-C 61.

112. Fragment of damaged frieze showing the cult of the Buddha's alms-bowl. In the centre, the alms-bowl of the Buddha set on a cushion in the seat of a draped throne. The throne is provided with high sides, over which is stretched a canopy, as in *A.G-B.G.* fig. 211. Its front is also draped, and its legs rest on lions *couchant regardant*. On either side are three worshippers, the one nearest the throne on bended knee, with hands touching the ends of the canopy. Such scenes are frequently found on the pedestals of images. Cf. *A.G-B.G.* figs. 211 and 459, *a*. Of phyllite. Length 18·5 in. Dh. '30–780; mon. court A; sq. 17·18'; 4 ft. 8 in. below surface. Cf. p. 278 *supra*.

113. Relief of unusual character depicting the 'Visit of Indra'. Cf. no. 124 *infra* and *A.G-B.G.* fig. 246. The panel is divided horizontally into two compartments by a balustrade in the form of a railing. In the lower the Buddha is seen, seated in meditation in a cave, his hands hidden in his robe. Outside the cave, on his left, stands Indra with halo and his usual high head-dress (cf. nos. 147–50 *infra*). His clasped hands touch the cave-wall. A unique feature is the presence, on the other side of the cave, of Brahmā, haloed and in a similar attitude of adoration. Instead of the teeming life of the jungle the only animals are two wild boars in front of and below the mouth of the cave. Above the balustrade are four figures; the two on the sides are diving headlong, like wingless angels, towards the middle of the balustrade, where from their cupped hands they rain down large, four-petalled blossoms which fall in front of the balustrade and on the top of the cave. In the background and between these two spirited and unique figures are two haloed *devas* about to drop similar flowers over the balustrade. Apropos of these wingless angels, M. Foucher notes that they have their nearest counterpart in the Portail Royal of Chartres Cathedral (A.D. 1145–50). Of phyllite. Height 21·25 in. Cf. p. 346 *supra*; *A.S.R.* (1927), Pl. XIX, 1. Gr. '27–109; court D, room 2; 9 ft. below surface. (Pl. 219, no. 113.)

114. Relief showing the haloed Buddha in meditation, his hands hidden in his robe, seated under a tree on a grass-strewn throne. On either side, a standing figure offers to the Buddha a circular object, apparently a bowl of food. The personage on the Buddha's left is almost obliterated save for the offering and edge of robe and the legs; but the one on the right is well preserved. He wears a *dhotī*, one end of which is drawn up across his bare chest to his left shoulder, wound tightly round the neck and then drawn cowl-like over his head, hiding all but his ears and a tuft of hair above his forehead. Cf. no. 115 *infra* and *A.G-B.G.* figs. 250 and 333. This concealment of the head generally indicates inferior caste. Despite the absence of the

traditional ox-carts (cf. Peshāwar Museum no. 799), it is probable that this scene is intended to depict the food offering of the two merchants, Trapussa and Bhallika. Cf. no. 116 *infra*. Of phyllite. Dharmarājikā Stūpa. The sculpture is still *in situ*, at the side of the steps near N 18 which lead to the monastery area. (Pl. 220, no. 114.)

115. Fragment from a relief such as no. 114 *supra*, consisting of the head of a figure with head shaven save for a tuft of hair above the centre of the forehead. The head, except the face and tuft of hair, is covered in the folds of a shawl. The figure is probably that of a man of inferior caste. Cf. no. 114 *supra*. Of phyllite. Height 2·4 in. Dh. '21–B 64; D 3; 2 ft. below surface. Cf. p. 251 *supra*. (Pl. 226, no. 115.)

116. Relief showing the haloed Buddha seated in meditation under a tree, now defaced, on a grass-strewn throne with saw-tooth moulding on upper edge. Standing on either side of the Buddha are two men of middle caste. In each case the one nearer the Buddha bears an offering in his cupped hands; those behind are clasping their hands in adoration. In the upper right corner are traces of another adoring figure. All the faces are lost save those of the two figures on the left of the Buddha. The nearer is bearded, his companion clean-shaven. The scene probably represents the 'Offering of Food' by the two merchants, Trapussa and Bhallika, despite the absence of the traditional ox-carts. Cf. no. 114 *supra*. If this identification be correct, then the defaced tree is the *rājayatana* tree, under which the Buddha was then meditating. Of phyllite. Length 16·75 in. Dh. '12–1,036; D; 8 ft. below surface. Cf. p. 251 *supra*.

117. Relief depicting the haloed Buddha seated in *abhaya-mudrā* on a grass-strewn throne with saw-tooth moulding on the upper edge. To his left stands a small defaced figure in an attitude of adoration, and behind it, the upper part of a haloed figure with a high head-dress and hands clasped on the breast. On the Buddha's right is a venerable bearded Brāhman with clasped hands and face turned to the Buddha; and, in the background, an aged Vajrapāṇi, with his *vajra* in his left hand. Despite some unusual features, the scene may possibly represent the *Adhyeshaṇa*, the 'Entreaty of the Buddha' by the gods Brahmā and Indra to preach his doctrine; for the haloed figure appears to be Indra and the aged Brāhman, though lacking a halo, might well represent Brahmā. Cf. *A.G-B.G.* figs. 212–13, 215, 347, *a* and 440. Of phyllite. Height 8·6 in. Kn. '31–130; octagonal chamber, A 1; 2 ft. below surface. Cf. pp. 328–9 *supra*. (Pl. 220, no. 117.)

118. Part of a unique representation of the First Sermon showing the haloed Buddha seated on a grass-strewn throne, his left hand grasping the hem of his robe (in quite unusual fashion), his right hand touching the Wheel of the Law. The wheel is thirteen-spoked with small bosses on the inside of the rim between the spokes, and small umbrellas (?) corresponding to them on the outside (p. 34, n. 1 *supra*). The wheel rests on the three points of a *triratna*, supported by a dwarf Indo-Corinthian pillar. Flanking the throne are two deer *couchant regardant*. An unusual feature is the presence, on the left of the Buddha, of Indra, haloed but now defaced, while Brahmā, likewise haloed and in the guise of a Brāhman novice, occupies the corresponding position on the Buddha's right. On Brahmā's right is a bearded Vajrapāṇi, with fly-whisk (*caurī*) in right hand and *vajra* in left. In the left foreground two monks are seated on low, circular, grass-strewn seats. The right of the panel is lost, and of the other three monks only traces of one and his seat remain. A spirited, haloed, flying *deva* with flower (?) offering in left hand fills the upper, left corner. Along the lower edge is a stylised, foliate moulding. Of phyllite. Height 19 in. Cf. p. 251 *supra*; *A.S.R.* (1912), Pl. VIII, *e* and Marshall, *Guide to Taxila*, Pl. VIII, *b*. Dh. '13–69; D 3; 5 ft. 6 in. below surface. (Pl. 220, no. 118.)

119. Fragment of relief depicting the 'First Sermon'. Cf. no. 118 *supra*. All of the panel to the left of the Buddha is lost save the standing figure of a youthful Vajrapāṇi. The Buddha is seated under a tree on a throne, no longer grass-strewn, but with the saw-tooth moulding on the upper edge. His left hand grasps his robe, his extended right hand (now lost) touching one of three interlaced, five-spoked wheels, each of which is supported on a point of a *triratna*. Cf. *A.G-B.G.* fig. 219. On the Buddha's right are three monks of various ages, one standing,

with clasped hands, the other two seated in meditation on low grass-strewn seats. Traces of a now lost figure on the upper left, between the aged monk and the tree. Of phyllite. Height 8·2 in. Kn. '32–302; front of B15; 1 ft. 9 in. below surface. Cf. p. 340 *supra*. (Pl. 220, no. 119.)

120. Fragment showing a high gateway and part of the contiguous crenellated and loopholed city wall. Emerging from under the flat lintel of the gateway, a figure appears with hands now lost but seemingly carrying a round object (? alms-bowl). Despite the absence of the Buddha, due to the mutilation of the right side of the fragment, and the presence of a second person with an alms-bowl—unless this latter be a second representation of the emerging figure—there can be little doubt that the latter is Nanda, enveigled by the Buddha into carrying his alms-bowl from the city of Kapilavastu to the Nyagrodhārāma. Cf. *A.G-B.G.* fig. 234. Of mica schist. Height 19 in. Dh. '13–170; D3; 1 ft. 6 in. below surface. Cf. p. 251 *supra*.

121. Relief depicting the Buddha attended by Vajrapāṇi and surrounded by women. The Buddha, haloed and moustached, is seated on a cushioned throne with turned legs. Over the cushion is a coverlet, with three lines of beaded ornament, which falls in front of the throne to the level of a small footstool. The Buddha's right hand is raised in *abhaya-mudrā*, his left rests in his lap, the first two fingers pointing downwards. On the Buddha's left are four standing females, two younger ones in the upper background, two elder ones in the foreground. By the Buddha's right shoulder stands a fully clothed and bearded Vajrapāṇi, the end of his heavy *vajra* in his right hand. Below him is a middle-aged woman with two little girls, the taller standing by the edge of the throne, the smaller in front of it, her head level with the cushion. The skilful characterisation of the varying ages of the women is exceptional, and their coiffures exhibit great variety. The two younger women wear chaplets, but in the case of the older women these are replaced by light coverings, falling like veils behind the shoulders. All the women wear ear-rings, collars, necklaces, bracelets and, where the feet are shown, anklets, except the very aged female on the right who wears only bracelets. The attitudes of the women are varied; three carry offerings in baskets, another has a bunch of blossoms in her right hand and one young female and the two children clasp their hands in adoration. There are no details to assist in the identification of this scene and we can only recognise some of the many benefactresses of the Buddha or so many donors. Of phyllite. Height 19 in. Cf. p. 251 *supra*; *A.S.R.* (1912). Pl. VIII, *d* and Marshall, *Guide to Taxila*, Pl. VIII, *a*. Dh. '12–2,286; D3; 5 ft. 6 in. below surface. (Pl. 221, no. 121.)

122. Fragment from left side of a relief showing part of a haloed *deva* or Bodhisattva with hands clasped in adoration and facing right. When complete the figure was, like the *deva* on the upper left corner of no. 129 *infra*, seated with legs crossed at the ankles but all below the ankles is now lost. Cf. also no. 123 *infra*. The hair, dressed high on the head, is bound by a jewelled band above the brow and falls behind in a bunch of curls. An armlet and flat collar adorn the figure and the edge of the halo is embellished by a beading and incised line. Of phyllite. Height 3·62 in. Cf. p. 249 *supra*; *A.S.R.* (1914), Pl. X, 8. Dh. '14–721; B18; 2 ft. below surface.

123. Fragment from right of a relief such as no. 129 *infra*, showing a haloed *deva* or Bodhisattva seated in easy attitude on a throne, with legs crossed at the ankles. The face, damaged, was turned half-left. The hair is dressed high on the head, and ear-rings and bracelets adorn the figure. The left hand grasps the edge of the robe in the lap, the right holds the very thick stalk of a large conventionalised flower, probably intended for a lotus. This figure, like no. 122 *supra* and no. 129 *infra*, is probably from some large and elaborate composition of the 'Miracle of Śrāvastī'. Of phyllite. Height 5 in. Cf. p. 249 *supra*; *A.S.R.* (1914), Pl. XVIII. Dh. '14–752; B–19; 2 ft. 6 in. below surface.

124. An elaborate but mutilated representation of the 'Visit of Indra'. Cf. no. 113 *supra* and *A.G-B.G.* fig. 246. In a cave in a rocky mountain the haloed Buddha, face missing, is seated in meditation. From surrounding caves the heads of wild animals peep out, and there are traces of two headless beasts along with other undefinable creatures. Trees and foliage spring from the mountain sides, and here and there on rocky ledges are human figures,

mostly standing, with faces towards the Buddha; the greater number are defaced, though four haloed, adoring *devas* are still fairly well preserved, in pairs on either side, near the top of the cave. On the right is Pāñcika, seated in European fashion, wearing a coat of mail, the lower end of his long spear still preserved between his legs, as in *A.G-B.G.* fig. 432, and in the inscribed representation in the Peshāwar Museum. Below Pāñcika are traces of five standing figures; those corresponding to them on the left of the cave are now only faintly discernible, but, judging from replicas of this scene, the one nearest the cave may have been Indra's musician, Pañcaśikha. Behind him are the six hoods of a Nāga Snake-king, and a little higher up is a small figure, seated in meditation. The long panel below, on which Indra and his entourage are shown, is so defaced that among the twelve figures crowding the scene, it is now impossible to identify any; on the right, however, are clear indications of Indra's elephant, Airāvata, and the royal umbrella. Indra, himself, is lost in the medley of gods forming his cortège. Neither is it possible to name the figure on the left, seemingly rising *à mi corps* from the bottom edge of the panel. Of phyllite. Height 32·5 in. Cf. p. 384 *supra*; *Jn. Mem.* Pl. XVIII, *a*. Jn. '16–130; C15; 6 ft. 6 in. below surface. (Pl. 221, no. 124.)

125. Fragment from left of a relief of the 'Offering by the Monkey'. A monkey, erect on its hind legs, advances to right holding in its two paws the alms-bowl of *madhu* to present to the now lost Buddha, who was seated under a pipal tree, of which part of the foliage is preserved. Behind the monkey is a seated meditating monk, and between him and the animal is a headless standing figure,[1] while near the pipal foliage are the head and torso of a man of good caste, with elaborate turban, facing right. On the upper left edge is the foliage of a tree, doubtless the one from which the monkey has collected the *madhu*. Of phyllite. Height 9·25 in. Cf. *A.S.R.* (1914), Pl. XIII, *a*. Dh. '14–890; between P10 and P7, on top of wall. (Pl. 221, no. 125.)

126. Headless image of the Buddha, seated in *dharmacakra-mudrā* on a full-blown lotus. The robe conceals the entire body except the right arm and shoulder and the soles of the feet, which are turned upwards, parallel to the front of the body. On the breast is placed the right hand, palm inwards, the first two fingers extended, the others slightly bent; the left hand is beneath the right, thumb and forefinger pressed together, touching the lower edge of the little finger of the right hand. Cf. no. 128 *infra*. Of phyllite. Height 9·18 in. Dh. '16–237; mon. court A; 2 ft. 6 in. below surface. Cf. p. 278 *supra*. (Pl. 221, no. 126.)

127. Fragment of image of the Buddha, seated on a full-blown lotus, in meditation. The head and greater part of the chest are missing, only the arms and crossed legs being fully preserved. The hands are not, as usual, lying in the lap with their palms upwards, but are clasped in front with the palms towards the body. Of phyllite. Height 6·25 in. Dh. '15–982; court A; 8 ft. below surface. Cf. p. 278 *supra*.

128. Headless image of the Buddha shown seated in *dharmacakra-mudrā*, with the bare soles of the feet upturned, as in no. 126 *supra*. The robe exposes the right arm and shoulder. The seat, which is damaged, was in all probability a lotus throne, as in nos. 126 and 127 *supra*, but with a modified base. Below the Buddha's right knee and attached to the throne stands a defaced, haloed figure, seemingly a Bodhisattva. Despite the damage to the hands, it is plain that their position was not precisely that shown so clearly on no. 126 *supra*. Of phyllite. Height 17 in. Dh. '13–231; N4; 3 ft. 9 in. below surface. Cf. pp. 262–3 *supra*.

129. Fragment from the right of a relief of the 'Miracle of Śrāvastī', showing haloed Bodhisattvas in various attitudes, seated or standing on lotus flowers upheld by their stems. One is seated in easy attitude, legs crossed at the ankles (cf. no. 123 *supra*), hands clasped in adoration; two hold long garlands in front of the body; another holds a flask in the left hand, suggestive of Maitreya, whilst another, seated on his haunches, knees up, one foot on the seed-vessel on which he sits, the other on the stamens of the lotus, draws a garland or jewels from a bowl held in the left hand. Reliefs of this nature are the source of such sculpture as

[1] The headless figure and the *madhu* tree appear on some fragments belonging to this relief which are missing from the photograph in Pl. 221, no. 125.

nos. 123 *supra* and 130 *infra*. Of phyllite. Height 13 in. Dh. '13–1,126; eastern stairs of Main Stūpa. (Pl. 221, no. 129.)

130. Figure of a haloed *deva* or Bodhisattva seated on a lotus throne. Face is turned half-right. The robe entirely conceals the body. The hair, dressed high, falls in waves on the right side of the head. Ear-rings and necklace (?) are the only jewels. The right hand is placed on the breast, palm inward; the left lies in the lap. Apparently from a relief such as no. 129 *supra*. Of phyllite. Height 5·12 in. Cf. *A.S.R.* (1915), p. 6, A 5. Dh. '15–1,470; main stūpa, east entrance; 2 ft. below surface.

131. A well-modelled head of a woman. The face is full, the eyes closed. The hair is dressed flat to the head and is crowned by a chaplet, composed of three rows of beads, with a four-petalled flower in the centre. The closed eyes suggest that the head is from a representation of the 'Sleep of the Women'. Cf. nos. 98–100 *supra*. Of phyllite. Height 3·8 in. Cf. p. 249 *supra*; *A.S.R.* (1912), Pl. VII, *a*, 2. Dh. '13–144; chapel D 5; 1 ft. below surface.

132. Relief depicting the last episode in the 'Miracle of Śrāvastī'. Under a mango tree the haloed Buddha is seated on a grass-strewn throne, the front embellished by a diamond trellis, with a four-leaved flower in each diamond, the points of the leaves in the angles. The left hand of the Buddha, now lost, lay in his lap; his right is resting, palm upward, by his knee. On the left of the Buddha is king Prasenajit on a low, draped seat, his hands, now defaced, clasped in adoration. Behind him are traces of a standing figure. On the Buddha's right are two naked *tīrthaṅkaras*, the nearer, now headless, seated like the king in European fashion on a circular rattan stool, both hands resting on his left knee. His disciple, bald-headed and exceedingly ill-featured, stands behind him with right arm bent until the hand rests on the shoulder. The seated, headless *tīrthaṅkara* is apparently Purāṇa Kāśyapa. In the background, on the Buddha's right, is Vajrapāṇi, with *vajra* in his left hand and his right arm wrapped in his robe, the hand alone protruding from the neck of the garment. The corresponding position on the Buddha's left is occupied by a standing, adoring figure, without halo—possibly one of king Prasenajit's followers. The scene seems to illustrate very closely a phrase in the *Jātaka*: 'The Master, having performed the *yamaka-pātihāriya* and having realised the readiness of many people to believe, descended and sat on his Buddha throne and taught the law.' The only difficulty is that the hands are not in the teaching attitude according to the Gandhāra School. But the general conception of the scene is more in keeping with the earlier Indian School and with the Pali tradition which designates this event as 'the miracle at the foot of the mango tree'. Of phyllite. Height 11 in. Dh. '12–278; between L and D 3; 4 ft. below surface. Cf. pp. 251, 698 *supra*. (Pl. 222, no. 132.)

133. Fragment from right side of a relief showing two standing Brāhman ascetics, the one on the left, a *brahmacārin*, wearing a short *dhotī* of woven material. His long hair falls from a topknot on either side of his head. His companion, an old, bald and bearded man, holds a water-pot (*kamaṇḍalu*) in the crook of his bent left arm. His only garment is a short skirt, apparently made of twisted and knotted fibres, probably from the inner bark of a tree. This material resembles that forming the lower part of the *parṇaśālā* of no. 134 *infra*. Cf. *A.G-B.G.* fig. 189. Of phyllite. Height 6·5 in. Kn. '13–161; A1; west of stūpa in octagonal chamber; 5 ft. 3 in. below surface. Cf. pp. 328–9 *supra*. (Pl. 222, no. 133.)

134. Fragment from left of a relief showing an aged, bearded anchorite, seated in his leaf hut (*parṇaśālā*) on a rolled mat (*bṛishi*), his hands clasped round his crossed legs below the knees. His ribs are clearly seen under the bare right arm. Before him is a fire-altar resembling those carved in the solid rock at Persepolis, and quite unlike the egg-cup shaped *vedi* shown in the Kāśyapa scenes on the east gate at Sāñchī. The leaf hut is not made uniformly of one material. The lower part resembles somewhat the garment of the old Brāhman in no. 133 *supra* (cf. *A.G-B.G.* fig. 189). Below the anchorite and the fire-altar is a narrow frieze, and on it an undulating garland-like stem with a half-eglantine in each loop. Under the frieze is a head of a youthful figure from a now lost scene. For the motif, cf. 'Seals and Sealings',

ch. 34, no. 24. Of phyllite. Height 8·9 in. Cf. p. 330 *supra*; *A.S.R.* (1930–4), Pl. XCIV, *d.* Kn. '31–572; front of A15; 2 ft. below surface. (Pl. 222, no. 134.)

135. Mutilated relief showing a line of five anchorites—the one on the right being headless. All have long, twisted locks falling on either side of the head. Two are young and clean-shaven, one is bearded, another has a moustache. The one on the left holds a flask in his left hand. Two of the older men have spotted deer-skins over the left shoulder. All have the right hand upraised in front of the body, the centre one placing it on the right shoulder, like the *tīrthaṅkara* in no. 130 *supra*. They watch with seeming wonder[1] the progress of another young anchorite, borne along, suspended head downwards, on a long pole carried on the shoulders of two companions. The pole-carrier on the right wears a short skirt; the one on the left is defaced. The suspended figure grasps the pole with his two hands, with his knees around the pole and the feet extended upwards. There are traces of another figure behind the pole-carrier on the right. Tenon on upper edge. A unique relief. Of micaceous schist. Height 13·25 in. Cf. pp. 184, 693–4 *supra*; *A.S.R.* (1927), Pl. XIX, 2. Sk. '27–82; Block E'; sq. 75·93'; stratum I. (Pl. 222, no. 135.)

136. Fragment of relief showing a rocky landscape. On the left, on a rocky ledge, stands a slim youthful figure clad in a *dhotī*, the body bent backwards from the hips, the hands holding up, with obvious effort, a large and seemingly heavy, circular, defaced and indefinable object which another figure, on a higher ledge to the right, seems either to push forward or to sustain in position with his outstretched arms. The tense attitude and the contracted muscles of the lower figure are admirably rendered. In the foreground, to the right and left, are traces of two figures, the former apparently haloed. On the upper edge are traces of a frieze consisting of a flat reel-and-bead moulding above a scroll of vine-leaf ornament. Of phyllite. Height 22·5 in. Dh. '14–C451. (Pl. 222, no. 136.)

137. Fragment from extreme left of a relief showing a now headless figure in the abandonment of grief (?). He kneels on his left knee, his right leg flexed, with his foot touching the left knee, toes on the ground and body supported by the edge of the panel. The attitude is suggestive of Vajrapāṇi in Parinirvāṇa scenes such as *A.G-B.G.* figs. 279–80, but the loss of both hands robs this attribution of certainty, while doubt is also engendered by what is evidently the remains of a necklace. Of phyllite. Height 8·25 in. Dh. '12–335; J 2; 3 ft. 8 in. below surface. Cf. p. 245 *supra*.

138. Fragment of a relief showing the cremation of the Buddha and also half of the oil receptacle, *taila-droṇi*, which formed the coffin. This stands on a stone pedestal with a saw-tooth moulding on the upper and lower edges. Tongues of flame lick the base of the *taila-droṇi* and fiercer flames arise from the surface. Two of the riveted plates joining the two pieces of the coffin are clearly marked. Cf. *A.G-B.G.* figs. 285–7. Of phyllite. Height 8·37 in. Dh. '14–959; chapel D12; on top of wall. Cf. p. 249 *supra*. (Pl. 222, no. 138.)

139. Head and chest of a wild, coarse-featured figure, with short hair and large staring eyes, bearing a load on his shoulders. The attitude is reminiscent of Greek figures carrying an animal by the legs. Cf. *A.G-B.G.* fig. 324. Of phyllite. Height 5·87 in. Dh. '12–778; between L and D 3; 5 ft. 6 in. below surface. Cf. p. 251 *supra*.

140. Fragment from the left side of a relief. The stone is much damaged but traces of the haloed head and surmounting royal parasol of the Bodhisattva still remain, as well as one of his long, impearled ear-rings. Behind his right shoulder is a youthful curly-haired Vajrapāṇi, grasping the middle of his *vajra* in his right hand. Vajrapāṇi is fully clothed and has a large circular brooch at the neck of his robe in front. Of phyllite. Height 13·5 in. Cf. p. 249 *supra*; *A.S.R.* (1914), Pl. IX, *c*. Dh. '14–804; B17; 5 ft. 6 in. below surface.

141. Relief depicting the haloed Buddha seated, under a pipal (?) tree, on a draped and cushioned throne, his right hand in *abhaya-mudrā*, his left grasping the edge of his robe in his lap. On his left are two personages of high rank, the nearer with flexed right hand upraised in

[1] It is to be noted, however, that round, staring eyes are a characteristic feature of the early period of Gandhāra sculpture to which this relief belongs. *Vide* no. 13 *supra*.

145. Head of elderly monk from a relief. Clean-shaven head and face. Strong, heavy features with small, tight-lipped mouth, heavy eyebrows, furrowed brow. Of phyllite. Height 3·2 in. Dh. '14–331; west of main stūpa, in debris.

146. Fragment from left of relief showing head and torso of a moustached figure, face turned half-right. On the head is what at first sight looks like the braided locks (*jaṭā*) of a Brāhman ascetic, but is in reality a turban of tightly twisted cloth. (Cf. Pl. 149, *c*, *d*, *e*, *h*.) The figure wears a necklace and ear-pendant with cylindrical end. The defaced right hand is raised to the breast in salutation; the left is lost. On the left shoulder are traces of drapery. The feet of this figure are on a separate piece of stone, 7 in. high. (Dh. '13–1,373.) Of pale greenish grey mica schist. Height 13·5 in. Dh. '13–2,010; B 5; south wall; 2 ft. 6 in. below surface. Cf. p. 249 *supra*.

147. Head of Indra from a relief. Moustached. Round the head, above the forehead, is a chaplet, consisting of four strings of beads broken at intervals by five-petalled roses. Above this rises a head-dress, in the form of an inverted, truncated cone, embellished by incised diamond pattern. The only visible hair falls below the chaplet to the, now missing, ears. Nose damaged. Of phyllite. Height 4 in. Dh. '12–1,567; between L and D 5; 4 ft. 3 in. below surface. Cf. p. 251 *supra*. (Pl. 225, no. 147.)

148. Fragment from left of a relief. Beneath a stylised canopy of leaves, arranged in circles round a central boss, is the head of a youthful Indra, facing right. His head-dress resembles a close-fitting cap, crowned by an inverted, truncated cone, embellished as in preceding example. Round the base of the cap is a circlet of gadrooned beads. The only visible hair falls below the cap to the right ear. Of phyllite. Height 8 in. Dh. '13–70; between L and D 5; 5 ft. 6 in. below surface. Cf. p. 251 *supra*. (Pl. 224, no. 148.)

149. Fragment from right of a relief showing Indra's head, moustached, face turned slightly to the right. His head-dress consists of a low-crowned hat ornamented with a much-defaced floral design and, below it, a chaplet of (?) beads. Beneath the latter appears a narrow line of hair. A heavy ear-pendant and jewelled collar are still intact. Of phyllite. Height 5·75 in. Dh. '12–155; between L and D 5; 2 ft. 3 in. below surface. Cf. p. 251 *supra*.

150. Fragment of relief showing Indra's head, moustached. Nose, chin and left eye are damaged. Head-dress resembles that of no. 149 *supra*, and consists of a low-crowned hat rising above a chaplet. The hat is decorated with small, framed panels containing alternately a five-petalled eglantine and a pair of human figures. Of phyllite. Height 4·25 in. Dh. '12–C 174.

151. Fragment of relief showing Śiva clad in *dhotī*, standing with his back to his bull, which has its lowered head to Śiva's right. All of Śiva, above the waist, is missing, as is also the bull's back. Of rough workmanship. Cf. *A.G-B.G.* II, Pl. V, 16, 18, and *A.S.R.* (1915), p. 8, no. 32. Of phyllite. Height 6·25 in. Dh. '15–1,507; U 1 east; 8 in. below surface.

152. Relief showing the Bodhisattva Siddhārtha haloed and standing, right hand in *abhaya-mudrā*, left on the hip. Over his head is a parasol, the edge adorned with a beaded border and looped fringe with pendent bells. The figure is clad in a skirt tied at the waist; a light scarf hangs from the left shoulder, across the chest and round the right thigh, leaving the chest bare. The feet are lost. On his head is an elaborate turban with high, circular, frontal ornaments. (Cf. *A.G-B.G.* I, frontispiece.) Against the halo are seen the short ends of the ribbon which ties the turban. Long ear-pendants, jewelled collar, flexible necklace and bracelets are his ornaments. By the Bodhisattva's left side stands a small, female figure in easy attitude, left hand on hip, left foot brought behind the right, toes to the ground, heel upwards. The lost face is turned upwards to the Bodhisattva, right hand upraised, as if in salutation. She wears a collar, necklace, bracelets and anklets. By the Bodhisattva's right shoulder, the left arm and *vajra* of Vajrapāṇi are seen; by the left shoulder traces of another figure. The presence of Vajrapāṇi is abnormal, for he first appears in scenes of the Renunciation, which is not that represented here. It is possible that he may be part of a missing scene to the left, not connected with the Bodhisattva figure. The small, female figure is also unusual and is not in the customary

attitude of a donor. Of phyllite. Height 42 in. Cf. pp. 239, 251 *supra*; *A.S.R.* (1912), Pl. VIII, *c*. Dh. '12–105; from *pradakshiṇā* near L; 4 ft. below surface. (Pl. 225, no. 152.)

153. Fragment of relief showing a standing figure of Bodhisattva type. The two garments are draped as in no. 152 *supra*, and the defaced head-dress was of similar form. No indication of halo. Both forearms are lost. The damaged feet are bare. Heavy ear-rings, necklace, amulet chain and armlets adorn the figure. Of phyllite. Height 11·25 in. Cf. p. 271 *supra*; *A.S.R.* (1915), p. 7, no. 24. Dh. '15–1,137; P 8, north; 6 ft. below surface.

154. Square slab of slate showing, inside square framing, the footprints of the Buddha within a circular lotus border. Execution inferior. Size 3 × 3 × 1·25 in. Jl. '12–237; Mound C; 2 ft. below surface.

155. Head of clean-shaven male. Of speckled red sandstone. Style and material proclaim it a product of the Mathurā School. Eyes half-closed. Thick lower lip. Appears to wear close-fitting cap with long ends finishing by the ears, and two bosses on the top. Ears lost. Height 4·75 in. Cf. *A.S.R.* (1915), p. 7, no. 16. Dh. '15–371; mon. court A; 11 ft. below surface. Cf. p. 278 *supra*.

156. Buddha head of phyllite, without halo. No *ūrṇā*, but this may have been lost by damage to the forehead. Eyes almost closed. Head and *ushṇīsha* covered by schematic curls. Height 5·75 in. Cf. p. 278 *supra*; *A.S.R.* (1915), Pl. v, *f*. Dh. '15–1,185; mon. court A; 8 ft. below surface. (Pl. 225, no. 156.)

157. Image of the Buddha, haloed and standing on a low pedestal with chamfered corners, the front embellished by three four-petalled eglantines separated by honeysuckle ornaments. The figure is clothed to the neck, the *saṅghāṭī* upheld by the right arm revealing the side and lower edge of the under-garment (*antara-vāsaka*). The right hand is in *abhaya-mudrā*; the left, now lost, held the edge of the robe. The hair is treated naturally in waves. The *ūrṇā* is a circular projection. The fingers of the damaged right hand are joined below the first joint. Left knee is indicated under the drapery. Of quartz mica schist. Height 20·5 in. Jn. '18–F 588; chapel E 2. Cf. p. 384 *supra*. (Pl. 225, no. 157.)

158. Standing image of the Buddha. Feet, ankles, right hand and most of the halo lost; nose and left hand damaged. The figure is clothed as in no. 158 *supra*, the upraised right forearm lifting the *saṅghāṭī* and exposing the right side and hem of the *antara-vāsaka*. Hair in natural waves, so that the circular and somewhat flattened *ushṇīsha*, bound at its base by a narrow cord, looks like a natural dressing of the hair. The face is moustached. The left hand touches the robe; the right is raised in *abhaya-mudrā*. The left knee is indicated under the robe. Of phyllite. Height 37 in. Cf. p. 239 *supra*; *A.S.R.* (1912), Pl. VIII, *a*. Dh. '12–C 60. (Pl. 225, no. 158.)

159. Head of Buddha image, moustached. Ears lost. No halo. *Ūrṇā* is a circular projection. Hair, treated semi-naturally, covers the head and *ushṇīsha*, the latter bound at the base by a double string of beads with a large circular central boss. Cf. *A.G-B.G.* fig. 451. In the widely opened eyes the pupils are indicated. Of talcose chloritic schist. Height 5 in. Mm. '15–231; near steps of monastery; 12 ft. 6 in. below surface. Cf. p. 362, no. 11 *supra*.

160. Image, in two pieces, of the Buddha, haloed and standing on a lotus pedestal. Face damaged, both hands and part of the halo lost. The figure, like no. 157 *supra*, is somewhat squat and similarly robed. Right hand was in *abhaya-mudrā*; the left is by his side. Cf. *Jn. Mem.* p. 40, no. 2. Of phyllite. Height 25 in. Jn. '16–153; right side of entrance to monastery opposite E 2; 10 ft. below surface. Cf. p. 384 *supra*.

161. Head of pale grey micaceous schist resembling that of no. 89 *supra*. The much-damaged face is full, the eyes wide-open and slanting. In place of hair the face is framed by a wig-like head-dress of lotus leaves similar to that in no. 13 *supra* but of better execution. Probably early Gandhāra work of first century A.D. Height 6·5 in. Dh. '15–1,344; mon. court A; 12 ft. below surface. Cf. p. 278 *supra*. (Pl. 225, no. 161.)

162. Head of princely figure, without halo or *ūrṇā*, probably of the Bodhisattva Siddhārtha. Wears an elaborate turban with large fantail ornament in front, seemingly jewelled. A large

cylindrical gem on the forehead connects the cords of the turban. In the right ear, the only one fully preserved, is a heavy beaded ear-pendant. Of phyllite. Height 6·37 in. Dh. '16–1,019; east side of L; 3 ft. 2 in. below surface. Cf. p. 251 *supra*. (Pl. 226, no. 162.)

163. Buddha head of chloritised mica schist. Face is full and clean-shaven; the eyes prominent. Halo and ears are lost. *Ūrṇā* is a circular projection. Small schematic curls cover the head and a cord binds the base of the *ushṇīsha*. Cf. no. 159 *supra*. Height 4·75 in. Kn. '31–305; court F, in front of cell 1; 4 ft. below surface. Cf. p. 336 *supra*.

164. Fragment of chloritised mica schist showing the head of a princely figure of the Bodhisattva type. No halo or *ūrṇā*. The face is somewhat flat, the pupils of the eyes indicated, the moustache long and drooping. The head-dress is the usual turban with jewelled bands and high central ornament. Height 4·37 in. Dh. '15–374; mon. court A; 11 ft. below surface. Cf. p. 278 *supra*.

165. Female head, probably end of antefix or bracket. The features are lost but the hair is treated in an unusual and interesting fashion, being plaited in four bands, each of five or more strands, to form a long tail which falls to the nape of the neck, where it is bent upwards again and finishes in four tassel-like ends which are again turned downwards. Round the brow, below the hair, is a chaplet which ends behind the ear in a circular ornament. Of pale mica schist, probably of first century A.D. Height 7·37 in. Dh. '13–1,211; D8; 1 ft. 6 in. below surface. Cf. p. 249 *supra*.

166. Small head of monk from left of a relief, the face turned half-right. The face, slightly damaged, is of an ageing person, cheeks sunken and two deep furrows on the brow. Of phyllite. Height 2·62 in. Cf. *A.S.R.* (1915), p. 7, no. 12. Dh. '15–1,215; mon. court A; 10 ft. below surface. Cf. p. 278 *supra*. (Pl. 226, no. 166.)

167. Head of princely figure from end of antefix or false bracket. Cf. *A.G-B.G.* fig. 12 and no. 11 *supra*. Eyes staring, long drooping moustache. The head-dress is an elaborate turban of three narrow bands separated by rows of beads with a prominent ornament in front, round which is looped the lowest band, thus revealing a little of the straight hair above the middle of the brow. Of talcose phyllite, of peculiarly silky texture. Height 8·1 in. Dh. '13–396; D4; 1 ft. below surface. Cf. pp. 693–4 *supra*. (Pl. 226, no. 167.)

168. Buddha head of phyllite. Nose and left ear damaged. Hair is treated in natural waves over the head with a somewhat conical *ushṇīsha*. No halo. Height 5 in. Dh. '12–C 60, *a*.

169. Head of princely figure, nose damaged, right ear lost. Of the Bodhisattva type, but with no halo or *ūrṇā*. The elaborate turban has ornamented side projections as well as high frontal ornament, giving it a more crown-like appearance than is usual. Of phyllite. Height 3 in. Dh. '14–698; P4, north side; on floor-level. Cf. p. 267 *supra*.

170. Two heads of phyllite. (*a*) Head of wild-looking Vajrapāṇi. Hair thick and unkempt, beard short and thick. Eyes wide, pupil indicated. Nose damaged. Trace of *vajra* by right ear. Height 3·12 in. Dh. '16–971; mon. court A; in spoil earth. (*b*) Head of monk. High forehead; long face tapering to chin; mouth small and compressed; nose broad and drooping at the tip; pupils indicated. Height 2·75 in. Dh. '16–210; mon. court A; 4 ft. 6 in. below surface. Cf. p. 278 *supra*.

171. Head of princely personage with elaborate jewelled turban, having large, high, central ornament. Slight moustache. Nose broad and slightly drooping at the tip, as in no. 170, *b supra*. Of phyllite. Height 3·5 in. Dh. '12–2,349; D3; 4 ft. 3 in. below surface. Cf. p. 251 *supra*.

172. Head of an elderly monk from a relief. Very heavy features, face full and round, lips thick and nose broad at the tip; two furrows on the brow. Of phyllite. Height 2·25 in. Dh. '13–C 117.

173. Head, from a relief, of a Brāhman novice (*brahmacārin*). The long hair is drawn up to a pointed loop above the forehead. Cf. *A.G-B.G.* fig. 430. In all probability Megha (Sumati) from a representation of the *Dīpaṅkara Jātaka*. Of phyllite. Height 3·5 in. Cf. *A.S.R.* (1915), p. 7, no. 22. Dh. '15–1,381; P2, south; in debris. Cf. p. 267 *supra*.

174. Fragment of phyllite showing the defaced head of the Boddhisattva. The features are almost lost but the large and elaborate turban with high, frontal ornament is fairly well preserved. Over the head is a canopy with bells suspended from the loops of a garland-like fringe, presumably part of the royal umbrella. Possibly from a representation of the Renunciation. Cf. *A.G-B.G.* fig. 183. Height 14 in. Cf. p. 278 *supra*; *A.S.R.* (1915), p. 7, no. 10. Dh. '15–1,162; mon. court A; 10 ft. below surface.

175. Head of Bodhisattva. No halo but *ūrṇā* represented by small circular projection. Eyes closed. Nose and mouth damaged. Wears an elaborate, jewelled turban with high frontal fantail ornament. Traces of slight moustache and heavy ear-pendant in left ear. Of phyllite. Height 6 in. Cf. p. 278 *supra*; *A.S.R.* (1915), p. 7, no. 15. Dh. '15–881; mon. court A; 5 ft. 6 in. below surface.

176. Head of haloed, moustached figure with hair arranged in wig-like fashion round the head but drawn into a small topknot tied at the base. The type is that of Brahmā, but is sometimes adopted for the Bodhisattva. Cf. no. 93 *supra*. No *ūrṇā*. Eyes large and well open. Cf. *A.G-B.G.* fig. 212. A hollow at the back. Of phyllite. Height 5·37 in. Bj. '24–14; S3; 6 ft. below surface.

177. Head of Bodhisattva figure. No halo. *Ūrṇā* a small circular projection. Nose damaged. Half-opened eyes, somewhat prominent. The head is treated like that of the Buddha, with high, domical *ushṇīsha*; instead of the usual heavy turban, it is covered by a network of strings of pearls, gems and ornaments. Of chloritised mica schist. Height 5 in. Kn. '31–467; south of A4; 4 ft. 6 in. below surface. Cf. p. 324 *supra.*

178. Fragment of relief showing head and torso of a figure with fly-whisk, *caurī*, in right hand. The figure is naked save for a scarf passing round the shoulders and under the arms. Details of the features are lost. The ornaments consist of ear-rings and a flexible necklace, which falls on the bare chest in schematic and unnatural arrangement. Of chloritised mica schist. Probably of early Gandhāra School, first century A.D. Height 4·37 in. Dh. '15–673; N17; 2 ft. below top of stūpa. Cf. p. 269 *supra.*

179. Statuette, of pale grey mica schist, of standing figure (male) in the round, unfinished at the back. Head lost. Wears *dhotī* and a scarf passing over left shoulder, down the left side across the body and round right thigh, leaving most of chest bare. Feet rest on a lotus. Left arm bent, hand holding lotus flower; right hand resting on hip. Wears collar and heavy bracelet. Small tenon under lotus base and mortice on left shoulder. Probably of early part of first century A.D. Height 12·25 in. Dh. '30–27; mon. court A; sq. 14·17'; 1 ft. 6 in. below surface. Cf. p. 278 *supra*. (Pl. 226, no. 179.)

180. Torso of standing male figure of high caste, clothed in a *dhotī*. Scarf wound round left shoulder and brought to right side, as in no. 179 *supra*, leaving the chest bare. Ornaments remaining are a collar and a heavy flexible necklace supporting a cylinder. Of phyllite. Height 8·2 in. Kn. '31–454; west of A4; 4 ft. 7 in. below surface.

181. Torso of lay-worshipper with hands to breast, holding an offering, which is now defaced, leaving a hole in the chest. Wears long garment concealing all the body save right shoulder. Of phyllite. Height 16 in. Dh. '15–348; N4, east; 4 ft. below top of stūpa. Cf. pp. 262–3 *supra.*

182. Standing headless male figure clad in *dhotī* and scarf hanging from left shoulder across the body and round right thigh, as in no. 179 *supra*. Hands lost, feet defaced. Wears long, heavy necklace. Height 13·87 in. Dh. '16–1,055; between B8 and B6; 2 ft. 9 in. below surface. Cf. p. 249 *supra.*

183. Image of the Buddha, headless, seated in European fashion in easy attitude with right foot raised on footstool higher than left. Right hand, now lost, in *abhaya-mudrā*; his left, resting on the thigh, grasps between open fingers the edge of his robe. The base is decorated in front with floral pattern. Large tenon beneath. Of mica schist. Height 10·75 in. Dh. '14–268; P8; 1 ft. below surface. Cf. p. 271 *supra.*

184. Headless female figure, of potstone, in quasi-relief, shown seated in European fashion on a lion throne. Wears a tunic confined by jewelled waist-band and leaving the left breast bare. Below the waist, heavy voluminous drapery swathes the legs and conceals the feet. Right hand lost. In the left, which rests on the thigh, is what is probably intended for a *cornucopia*, the narrow twisted end against the shoulder; the wider, bottom end resting in the hand resembles the head of a *makara* and is suggestive of a rhyton. This may be meant for Hārītī. Cf. nos. 1 and 3 *supra* and also *A.G-B.G.* figs. 386–9. Height 4·87 in. Dh. '34–1.

185. Standing male figure of fine-grained grey stone, in low relief. In easy attitude, with the weight of the body on left leg, and the right crossing it in front. The elbow of the bent right arm rests on the head of a defaced dwarf or *gaṇa*, which stands on a defaced object, probably an animal. The body is naked to the waist save for a necklace, breast-chain and narrow scarf over left arm. Of the lower garment only a narrow band round the loins and a long tail-like piece falling between the legs are indicated. The ear is long with pendulous and pierced lobe, lacking ear-ring. Behind the head is what may be intended for a halo, against which floats the decorated end of a diadem or the ribbon of the high crown-like head-dress, as on certain Sasanian coins and sculptures. Height 4·5 in. Probably of fourth to fifth century A.D. Cf. p. 278 *supra*; *A.S.R.* (1915–16), p. 7, no. 14. Dh. '15–1,027; mon. court A.

186. Fragment of relief showing a headless standing figure in Kushān dress. Feet missing and all details lost. Cf. *A.G-B.G.* fig. 352. Of mica schist. Height 5·12 in. Dh. '12–C 104. (Pl. 226, no. 186.)

187. Headless standing female figure of micaceous schist. Wears a long, close-fitting, knitted (?) garment and a shawl falling from the left shoulder to the right side; also a necklace composed of several strings, held together in two places by spherical bosses. In her left hand is a spouted water-pot. One of Māyā's attendants from a representation of the 'Birth of the Buddha'. Cf. *A.G-B.G.* fig. 152. Probably of the first century A.D. Height 5·3 in. Cf. p. 258 *supra*; *A.S.R.* (1914), Pl. XIII, *f*. Dh. '14–339; M 8; 1 ft. 6 in. below surface.

188. Fragment from representation of the 'Seven Buddhas' of the past and the future Buddha, showing two, standing, headless Buddha figures. Both have the rather large right hand raised in *abhaya-mudrā*, the left, in one case, by the side on the hip, in the other resting on the waist. Cf. *A.G-B.G.* fig. 457. Of phyllite. Height 8·37 in. Mm. '15–299; mon. cell 19; 8 ft. below surface. Cf. p. 362, no. 12 *supra*.

189. Haloed, princely figure of Bodhisattva type from right of a relief. Face half-left, feet missing. Attitude and drapery suggest a flying figure, the knees being bent, head slightly backward and the end of the scarf flying outwards from the left arm. Right arm and left hand lost; features partially obliterated. Wears high head-dress, long plain necklace and ear-ring, seemingly of thin metal with leaf terminals. Of phyllite. Height 7 in. Dh. '14–211; P 2; 2 ft. below surface. Cf. p. 267 *supra*.

190. Fragment, much defaced, of male figure, facing left and holding a flute or pipe to the lips. Hair long, falling to the shoulders but with small topknot. Left shoulder, upper arm and feet missing. Cf. *A.G-B.G.* fig. 316. Of phyllite. Height 5·25 in. Cf. *A.S.R.* (1914), Pl. XIII, *c*. Dh. '14–485; T 1; 3 ft. below surface.

191. Fragment of seated Bodhisattva. Of phyllite. Only part of drapery, below waist, preserved. Feet lost. Right foot seems to have been placed behind the left calf, left foot on the ground. Cf. *A.G-B.G.* fig. 428. Height 9·5 in. Mm. '27–17; cell 17; 2 ft. below surface. Cf. p. 362, no. 13 *supra*.

192. Fragment from left of relief showing head and chest of Vajrapāṇi, of bearded Jovian type. He faces half-right and grasps in right hand the upper half of a *vajra*. Above, to his right, are traces of small bells edging a royal parasol, which must have shaded the lost Bodhisattva figure. Cf. no. 174 *supra*. Possibly from a representation of the Renunciation. Of phyllite. Height 11·12 in. Dh. '31–123; sq. 32·44'; 5 ft. 6 in. below surface.

193. Fragment of a phyllite relief showing three standing figures, the one on the left almost

obliterated. The central figure, of superior caste, wears a skirt and shawl, long necklace and bracelet. His right hand is raised to the shoulder as in salutation, left hand by his side. To his left is a smaller, youthful personage, facing right and with right hand raised to shoulder. Between the two is a now broken, pole-like object, possibly the stem of a tree. Height 7·7 in. Kn. '31–158; octagonal chamber, A1; 3 ft. below surface. Cf. pp. 378–9 *supra*.

194. Fragment of relief in two pieces. On upper edge are remains of a narrow frieze, adorned with three undulating stems and four-petalled roses in the loops. In the centre, under a canopy of conventional lotus leaves, are traces of a haloed, seated Bodhisattva(?) figure. On his right and left are female figures dancing to the music of the drum and fife, the former played by a female squatting in the foreground on the left of the panel, the fife by another female in the foreground on the right. Despite the foliage, this appears to be a representation of the 'Life in the Palace'. Of micaceous schist. Height 10·5 in. Dh. '13–684; west of D4; 1 ft. 6 in. below surface.

195. Fragment of relief of unusual character, showing the figures on different planes, marked by narrow, recessed ledges. On the uppermost ledge, which is cushioned, are two figures seated in European fashion, behind and between whom stands an attendant with *caurī*. The figure to the left is defaced, that to right has the features also defaced, but the head is wrapped in his scarf like a man of inferior caste. Cf. nos. 114–15 *supra* and *A.G-B.G.* figs. 250, 333. With upraised right hand he seems to argue with or entreat the figure to the left. On the lowest ledge a kneeling figure, with hands clasped in supplication, faces a male standing figure, much mutilated but with bangle on left wrist. To the left, with his back to the standing figure, is another defaced, kneeling person. Traces of a seat with turned legs are seen on the extreme left of a midway ledge. A unique and unidentified relief. Of phyllite. Height 20 in. Cf. p. 249 *supra*; *A.S.R.* (1914), Pl. IX, *d*. Dh. '14–803; B17; 5 ft. 6 in. below surface.

196. Fragment from right edge of relief depicting 'Māra's attack'. Māra, wearing only a *dhotī*, elaborate turban, ear-rings and necklace, turns half-left in an attitude of defiance towards the missing Buddha. He is supported by an attendant, whose left hand is on Māra's hip. Cf. *A.G-B.G.* figs. 201, 403. In upper right, another of Māra's attendants is holding an uncertain object in both hands. Possibly this is one of Māra's daughters looking in her mirror, but this is very questionable. Of the demon army only one figure, standing on its head on the right edge of the panel, is represented. Cf. *A.G-B.G.* fig. 203 and no. 105 *supra*. On the extreme right are indications of a lost panel with bead-and-reel moulding. Of phyllite. Height 8 in. Kn. '31–87; octagonal room in A1; 1 ft. 9 in. below surface. Cf. pp. 328–9 *supra*. (Pl. 226, no. 196.)

197. Small enframed panel of phyllite showing the haloed Buddha seated on a low throne under a tree in the attitude of benediction (*abhaya-mudrā*). On either side is a youthful *yaksha*, naked save for necklace and armlet, standing with hands clasped in adoration. Height 3·12 in. Jn. '18–12; room 2, inside a niche. Cf. p. 385 *supra*. (Pl. 226, no. 197.)

198. Fragment from left of relief depicting the 'Miracle of Śrāvastī', showing five small Buddha figures, seated in various attitudes on lotus blossoms, supported by their stems. Traces of similar figures, now lost, and of haloes of others. Cf. nos. 122, 123, 129 *supra*, and *A.G-B.G.* fig. 79. Of phyllite. Height 18·25 in. Dh. '13–766; N1; 3 ft. below surface.

199. Fragment of phyllite relief with figures much defaced. On left, traces of halo of lost Buddha figure. Right of this is the head of a figure holding handle of dagger or broken sword and above this is an elephant's head with upraised trunk, and behind that, again, another defaced animal—possibly a bull. In the upper background is a fully clothed, haloed but mutilated figure, right hand to chest, left holding a bag or purse(?). The animals and armed figure are suggestive of 'Māra's attack', but the haloed figure in the background is unusual. Height 13·5 in. Dh. '13–472; between L and D3; 2 ft. below surface. Cf. p. 151 *supra*.

Chapter 37. BEADS

General remarks

THE BEADS recovered at Taxila number over 8,500, including 1,763 from the Bhiṛ Mound, 5,534 from Sirkap, and the residue from the Dharmarājikā and other sites. Several groups of these beads, which were found in association with datable coins and other antiquities, have already been described in detail,[1] and some of the chief features of those found on the Bhiṛ Mound and Sirkap have also been noted in the chapters descriptive of the digging on those sites.[2] Moreover, a representative selection of 950 beads, constituting about one-ninth of the whole collection, has been made the subject of a special *Memoir* by the late Horace Beck,[3] whose knowledge of Oriental beads was unrivalled. Here, therefore, I shall confine myself to some supplementary remarks, and particularly to an analysis of the two groups from the Bhiṛ Mound and Sirkap, the dates of which are more or less determined by the strata in which they occurred.[4] For this purpose I have prepared the four Tables below, which show these beads classified according to their materials and shapes, with the dates indicated by their stratification. The Tables, it should be noted, do not include the gold and silver beads or pearls belonging to necklaces, etc., which were found in various hoards of jewellery in the Bhiṛ Mound and Sirkap and are described in chapter 30.

MATERIALS

The commonest materials used for both the Bhiṛ Mound and Sirkap beads were semi-precious stones, shell and glass, but the fashions in these materials changed considerably from time to time. Thus, in the case of the Bhiṛ Mound collection, beads of semi-precious stones constitute as much as 42% of the whole, glass beads 32% and shell beads 14%. In the later Sirkap collection, on the other hand, those made of semi-precious stones constitute less than 12%, glass beads 50% and shell beads 26%. In the Bhiṛ Mound collection, again, eighty-one beads, representing 4% of the whole, are of bone, and four only of faience; while in the Sirkap collection only thirteen, or one in 500, are of bone, and 222 of faience.

[1] Cf. pp. 125, 144, 187–8, 242, 245, 246, 272–3, 288–9, 394.

[2] For beads from the Bhiṛ Mound, cf. pp. 102–3, 105, 109–10, 111; for beads from Sirkap, cf. pp. 130, 135–6, 204–5.

[3] *The Beads from Taxila*, by Horace C. Beck, F.S.A., ed. by Sir John Marshall, C.I.E., F.B.A. (*Memoir* no. 65 of the *Archaeological Survey of India*).

[4] I say 'more or less' because in the case of all very small objects, like coins and beads, there was always the likelihood of a certain number finding their way through the soil into strata below those to which they really belonged. For such 'strays' a liberal allowance must be made, particularly as there were relatively few solid floors on either the Bhiṛ Mound or Sirkap site. On the other hand, some allowance must also be made for the survival of such attractive and durable objects as brightly coloured beads, which would naturally be handed down from generation to generation.

A. STRATIGRAPHICAL TABLE OF BEADS FROM THE BHIṚ MOUND, CLASSIFIED ACCORDING TO THEIR MATERIALS

(Not including the gold and silver specimens described in chapter 30)

Material	Stratum IV	Stratum III	Stratum II	Stratum I	Total
Semi-precious stones:					
Agate	14	63	104	10	191
Agate, black	2	1	4	3	10
Amethyst		2	31		33
Beryl		2			2
Carnelian	34	139	224	20	417
Carnelian and agate, etched	3	4	8	1	16
Chalcedony	2	2	9		13
Garnet		2	3	1	6
Jasper		3	9	1	13
Lapis-lazuli	7	4	6	2	19
Malachite		1			1
Onyx		2	3		5
Quartz crystal, colourless	1	5	11	1	18
Quartz crystal, yellow	2	1	3		6
Quartz crystal, glazed		1	1		2
	65	232	416	39	752
Common stones:					
Abri stone			1		1
Granite	1	3	2		6
Limestone, white	2	1	1	1	5
Steatite (soapstone)			2		2
Nondescript		1	6		7
	3	5	12	1	21
Metals (excepting gold and silver):					
Cobalt			1		1
Copper	2	7	7		16
Iron		1			1
	2	8	8	—	18
Miscellaneous:					
Amber			2		2
Coral			2		2
Shell	49	51	149	11	260
Bone	5	25	51	2	83
Faience			4		4
	54	76	208	13	351
Glass:					
Amber coloured	1		2		3
Black	3	5	12	1	21
Blue	4	135	95	1	235
Cobalt blue		1	3		4
Green	1	13	36	2	52
Grey	1				1
Orange opaque		4	1	1	6
Red		4	8		12
Turquoise blue		1	2		3
Opal white	1		1		2
Yellow opaque		1	3		4
Multi-coloured and colourless	14	53	151	4	222
	25	217	314	9	565
Terra-cotta	1	49	6		56
Total	150	587	964	62	1,763

Provenance of stones

The provenance of the various stones, both semi-precious and other, which were used in the manufacture of these beads, has already been discussed in the introduction to chapter 25. Few of them except *sang-i-abri*, granite, limestone and marble, which are found in Hazāra or occur among pebbles washed down in the mountain streams, were obtainable in the immediate neighbourhood of Taxila, and it is probably safe to assume that the majority of those which came from a distance had been fashioned into beads in the country of origin, since it would obviously have been more economical to trade in the finished articles, which were little likely to be damaged in transit, rather than in the rough stones. Thus, to cite but two examples, carnelians and agates are more likely to have been cut and polished in the bazaars of Vidiśā, Ujjayinī, Bṛigukaccha (Barygaza) or Nāsikā, where the industry in these stones would naturally centre,[1] than at Taxila itself; and it may be taken virtually for granted that the stratified eye beads of multi-coloured glass illustrated in Plate 1 of Beck's *Memoir* came ready-made from the shores of the Mediterranean—probably from Syria—from where the few glass vessels found at Taxila and the much larger number at Begrām in Afghānistān also came. This accounts in a large measure for the remarkable variety in the designs of the Taxila beads, which could hardly have been so numerous, if they had all been produced at one centre; and it also accounts for the fact that certain shapes are associated with particular kinds of stones or other materials.

Changing fashions in stones

Among the semi-precious stones the prime favourite at all periods was carnelian, with agate, to which it is closely related, a good second. Then comes the colourless quartz crystal. Other stones, which were common to most of the settlements on both sites but much more sparingly used, were chalcedony, garnet, jasper and lapis-lazuli. Black agate is represented by a few specimens in all the Bhiṛ Mound strata, but not at all in Sirkap. Amethyst was fashionable for a time in the Maurya period, and to some extent also in the late Śaka-Parthian period, but was never a favourite stone. Malachite, too, and glazed quartz were in vogue for a short time under Parthian rule. Beryl, onyx, yellow quartz (cairngorm),[2] turquoise and blue and red serpentine were at all times very rare.

As pointed out in the chapter on 'Stone Objects' (ch. 25), various hard and refractory stones were freely used in the earlier period for the fashioning of small vessels and other articles, but replaced for the most part by softer stones from the first century B.C. onwards. This change in fashion is mildly reflected in the beads made of the common varieties of stone—*abri*, granite, hard limestone and steatite, but they are too few in number to be really significant. As to *sang-i-abri*, it is strange that there should be only one specimen of this highly coloured and striking stone, which is abundant in the Hazāra and Attock districts and was widely employed in Mughal times for *pietra dura* and other ornamental stonework.

[1] Cf. 'Stone Objects', ch. 25, pp. 476–8.

[2] The name *chrysolithos* appears to have been applied indiscriminately by the Romans to yellow quartz, yellow corundum, and true topaz, as well, perhaps, as to the modern chrysolite. See my footnote on p. 13 of Beck's *Memoir*.

B. STRATIGRAPHICAL TABLE OF BEADS FROM THE BHIR MOUND, CLASSIFIED ACCORDING TO THEIR SHAPES AND VARIETIES

(Not including the gold and silver specimens described in chapter 30)

Shape or variety	Stratum IV	Stratum III	Stratum II	Stratum I	Total
Spherical:					
Unpierced	1	9	21	2	33
Pierced	50	220	329	28	627
	51	229	350	30	660
Oblate	4	14	18	1	37
Ovoid		3	1		4
Barrel:					
Standard	14	32	60	2	108
Long	2	2	10		14
Short	2	4	12	1	19
Flat	1	3	11	1	16
Rectangular	1	5	8		14
Short-square	2	10	20		32
Triangular	3	11	30	3	47
Pentagonal			1		1
Hexagonal	4	11	22	2	39
Octagonal		1			1
	29	79	174	9	291
Hemispherical (or domical)			4	1	5
Scaraboid (or plano-convex oval,	2	6	18	3	29
Disk	8	15	30	2	55
Lenticular (or double-convex)	1		2		3
Cylindrical:					
Standard	2	8	6		16
Short		1	9	1	11
Hexagonal	1	2	6		9
Flat hexagonal		1			1
	3	12	21	1	37
Bicone:					
Short		1			1
Flat		2	4		6
Tabular		1	1		2
Square			1	1	2
Truncated	4	3	7		14
Long truncated		1			1
Flat truncated		2	5		7
Square truncated	4	2	2		8
Hexagonal truncated		1			1
Unspecified	4	2	6	1	13
	12	15	26	2	55
Cube:	2	2	1	1	6
Cornerless cube	2		4		6
	4	2	5	1	12
Angular and faceted:					
Diamond-shaped		13	44		57
Obtuse-angular			1		1
Wedge-shaped		1	1		2
Tetrahedral		1	2		3
Carried forward	—	15	48	—	63

Shape or variety	Stratum IV	Stratum III	Stratum II	Stratum I	Total
Angular and faceted (*cont.*):					
Brought forward		15	48		63
Twenty-four-sided			3		3
Twenty-six-sided		1			1
Facets not specified	1	2	24	1	28
	1	18	75	1	95
Tabular (including both square and rectangular)	1	9	30	4	44
Gadrooned		1	3		4
Collared		2	10	1	13
Leech:	2	3	10		15
Flat leech	1		5		6
	3	3	15	—	21
Toggle and button:					
Toggle	2	1	4		7
Button	1				1
	3	1	4	—	8
Spacers and terminals:					
Rectangular spacers	1		2		3
Flat conical spacers		1			1
Axe-shaped spacers			1		1
Ribbed spacers				1	1
Unspecified spacers			2		2
Terminal		1			1
	1	2	5	1	9
Minute	1	132	73		206
Eye:					
Barrel	15		2		17
Unspecified	3	2	24		29
	18	2	26	—	46
Pendants and miscellaneous:					
Ball pendant		2	1		3
Drop pendant		6	3		9
Bud pendant	1	4	13	1	19
Club pendant		5	4	1	10
Pear pendant	1		4	1	6
Vase pendant			2		2
Vase, gadrooned			2	1	3
Cylinder			1		1
Cone	1				1
Pyramid		1	8		9
Spiral			1		1
Quatrefoil			2		2
Inverted flower			10		10
Claw or tooth			1		1
Dagger		2			2
Axe		2	2		4
Double-axe		4			4
Nandipada		1	2		3
Crescent wheel		1			1
Standing human figure			1		1
Duck	1				1
Bird-on-tree			1		1
Scorpion			1		1
Irregular and nondescript	4	13	15	1	33
Uncut shell		1			1
	8	42	74	5	129
Total	150	587	964	62	1,763

C. STRATIGRAPHICAL TABLE OF BEADS FROM SIRKAP, CLASSIFIED ACCORDING TO THEIR MATERIALS

(Not including the gold and silver specimens described in chapter 30)

Material	Pre-Greek	Greek	Early Śaka	Śaka-Parthian	Surface	Total
Semi-precious stones:						
Agate		1	10	111	3	125
Amethyst		1		10	1	12
Aquamarine			2	1		3
Beryl				2		2
Carnelian	1	3	21	215	11	251
Carnelian, etched		1		8		9
Chalcedony		1	2	2		5
Garnet			3	24	2	29
Jasper		2	2	20	2	26
Lapis-lazuli		1	3	28	2	34
Malachite			7	40	2	49
Onyx			1	2		3
Quartz crystal, colourless		1	2	46	2	51
Quartz crystal, yellow				4		4
Quartz crystal, glazed		1	2	39	1	43
Quartz crystal, opaque				2	1	3
Turquoise				1		1
Blue serpentine				5		5
Red serpentine				1		1
	1	12	55	561	27	656
Common stones:						
Granite				3	2	5
Limestone, white				1		1
Limestone, nummulitic				3		3
Marble				2		2
Steatite (soapstone)			2	7		9
Shale			1	1		2
Nondescript			2	11		13
			5	28	2	35
Metals (excepting gold and silver):						
Copper		1	2	4	2	9
Miscellaneous:						
Amber				7		7
Coral		2		2		4
Shell	1	16	224	1,144	58	1,443
Bone				11	2	13
Faience		13	7	198	4	222
Ebony				2		2
Ebonite				1		1
Jet				3	1	4
	1	31	231	1,368	65	1,696
Glass:						
Amber			2	56	1	59
Black		1		17	2	20
Blue		8	27	203	9	247
Cobalt blue				1		1
Pale blue			2			2
Peacock blue				1		1
Cream-coloured				3		3
Green	1		10	336	5	352
Grey				68		68
Orange opaque				139		139
Red		1		5		6
Violet				1		1
White opaque				22	1	23
Yellow				4		4
Yellow opaque		6	182	1,437	45	1,670
Blotched			1	2		3
Multi-coloured and colourless	1	9	31	474	18	533
	2	25	255	2,769	81	3,132
Terra-cotta			1	4	1	6
Total	4	69	549	4,734	178	5,534

D. STRATIGRAPHICAL TABLE OF BEADS FROM SIRKAP, CLASSIFIED ACCORDING TO THEIR SHAPES AND VARIETIES

(Not including the gold and silver specimens described in chapter 30)

Shape or variety	Pre-Greek	Greek	Early Śaka	Śaka-Parthian	Surface	Total
Spherical:						
Unpierced		3	3	16	1	23
Pierced	1	9	46	728	39	823
	1	12	49	744	40	846
Oblate	1	5	22	206	9	243
Ovoid			2	8		10
Barrel:						
Standard		1	8	77	3	89
Long				10	2	12
Short		2	1	54	1	58
Flat				18		18
Rectangular			1	14	1	16
Short-square		1	1	2	4	8
Triangular			2	2	1	5
Pentagonal			1	6	1	8
Hexagonal		1		29	3	33
Oval				1		1
	—	5	14	213	16	248
Hemispherical (or domical)		2	12	97	4	115
Scaraboid (or plano-convex oval)	1	3	9	81	2	96
Disk	1	8	271	1,857	57	2,194
Lenticular (or double-convex)			1	342	1	344
Cylindrical:						
Standard		4	6	50	3	63
Short			1	15	4	20
Rectangular				4	1	5
Hexagonal				8	1	9
	—	4	7	77	9	97
Cone:				2	1	3
Flat cone				1		1
Truncated cone				1		1
	—	—	—	4	1	5
Bicone:						
Long				1		1
Short				4		4
Flat					1	1
Square				3		3
Truncated			1	9		10
Flat truncated				2		2
Square truncated				1		1
Hexagonal truncated				4		4
Pentagonal truncated				3		3
Unspecified		1	2	8	1	12
	—	1	3	35	2	41

Shape or variety	Pre-Greek	Greek	Early Śaka	Śaka-Parthian	Surface	Total
Cube:				10		10
Cornerless cube		2	12	200	2	216
	—	2	12	210	2	226
Angular and faceted:						
Wedge-shaped		2	2	29	1	34
Tetrahedral				1		1
Twenty-four-sided		1		1		2
Facets not specified		—	4	46	2	52
	—	3	6	77	3	89
Tabular (including both square and rectangular):			8	63	5	76
Cornerless square		1	2	10	1	14
	—	1	10	73	6	90
Gadrooned		10		10	1	21
Collared		1	2	15	2	20
Segmented			10	40	1	51
Granulated		1		14	2	17
Granulated and collared				1		1
Leech:			1	1		2
Flat leech			—	1		1
	—	—	1	2	—	3
Toggle and button:						
Toggle			1	1		2
Button			1	4		5
	—	—	2	5	—	7
Spacers and terminals:						
Disk-spacers		1				1
Rectangular spacers			1	8		9
Triangular spacers				1		1
Trident-shaped spacers				1		1
Unspecified spacers				7	1	8
Terminal		—	—	1	—	1
	—	1	1	18	1	21
Minute			1	17		18
Eye:						
Barrel				1		1
Cube				1		1
Ribbed				1		1
Unspecified			2	9	1	12
	—	—	2	12	1	15
Pendants and miscellaneous:						
Drop pendant			3	19	1	23
Bud pendant				2		2
Club pendant			1		1	2
Pear pendant				7		7
Pear pendant, gadrooned			1			1
Vase, gadrooned			1	14	1	16
Cylinder				1		1
Heart or butterfly			—	3	—	3
Carried forward	—	—	6	46	3	55

Shape or variety	Pre-Greek	Greek	Early Śaka	Śaka-Parthian	Surface	Total
Pendants and miscellaneous (*cont.*):						
Brought forward			6	46	3	55
Fluted				1	4	5
Leaf				1		1
Quatrefoil				2		2
Inverted flower					1	1
Claw or tooth				1		1
Dagger			1			1
Axe				1		1
Triratna				4		4
Comb			1			1
Double-comb				1		1
Cowrie				11	2	13
Fist		1		1		2
Corinthian-capital				1		1
Lion		1	3	1		5
Ram				1		1
Bird				1		1
Cock				1		1
Crow				1		1
Tortoise				4		4
Frog				4	1	5
Dog's head				1		1
Irregular and nondescript*	—	8	101	492	7	608
		10	112	576	18	716
Total	4	69	549	4,734	178	5,534

* These include twelve roughly barrel-shaped beads of glazed quartz which are collared at one end and decorated with crude cross-hatchings.

Etched stone beads

Among the semi-precious stones there are two varieties that call for special notice, viz. etched carnelian and agate, and glazed quartz. Of the former, sixteen specimens come from the Bhiṛ Mound, and nine from Sirkap. All the specimens from the Bhiṛ Mound and the majority of those from Sirkap are etched in white on the natural colour of the stone; but the Sirkap beads comprise a few which are either etched in black on the natural stone or in black on a white ground. Beads of all three kinds were manufactured in India as early as the Chalcolithic Age,[1] and those of the first kind are still being produced in Sind, or were until a few years ago.[2] The etching of these beads, in which the pattern appears in white on the natural colour of the stone, is effected by drawing the pattern on the stone with carbonate of soda or some other alkali and heating it until red hot. A chemical change is thus produced in the material and the soda enters the surface in the form of minute opaque white spots. 'The coefficient of expansion of the material is so altered that the white layer sometimes flakes off owing to the strain caused by

[1] For etched carnelians from Mohenjo-daro and Harappā, dating from the third millennium B.C., if not earlier, see *M.I.C.* pp. 509, 515–16, 583; *Excavations at Harappā*, pp. 401–2; H. C. Beck, 'Etched Carnelian Beads' in *J.S.A.* (1933), XIII, p. 4.

[2] For details of the process as practised until recently at Sehwān, see my note 2 on p. 2 of Beck's *Memoir*.

continual change in temperature, which accounts for beads of this type being originally described as inlaid.'[1] In the case of the much rarer variety of beads in which the patterning was in black on a white ground the effect was probably produced by first whitening the whole surface with an alkali and then drawing the pattern with a nitrate of copper or iron and refiring the stone. In all probability the same method was also employed for the third variety, in which the pattern appears in black on the natural colour of the stone, only that in this case the alkali as well as the metal nitrate was confined to the patterning alone.

The etched beads from the Bhiṛ Mound are of the following shapes: spherical, barrel, tabular, conical spacers, dodecahedron and double-axe; those from Sirkap: spherical, oblate, standard and long barrel and cube.

Glazed quartz

The other kind of semi-precious stone that deserves particular notice is glazed quartz. Two small beads, both spherical,[2] were found in the Bhiṛ Mound, and forty-three, besides six fragmentary ones, in Sirkap. The commonest shape among the latter, represented by twelve specimens, is an irregular barrel, collared at one end and decorated with rough cross-hatchings (cf. Beck, Pl. V, 1, 2). Then there are eight in the form of animals (four lions, three frogs and one tortoise) and four in imitation of cowrie shells. Of the rest, nine are spherical, two drop pendants, two gadrooned, one a truncated bicone, one a vase pendant, two heart-shaped (doubtful),[3] one collared disk, and one hexagon cylinder. Twelve representative examples of these are illustrated in Beck, Pl. V, nos. 1–6, 23–4 and Pl. VII, nos. 5, 6, 22, 28, 29. Of the forty-four specimens from Sirkap, forty come from the late Śaka-Parthian strata, and three only, which may well have been strays, from lower down. It looks, therefore, as if glazed quartz beads came into fashion during the Parthian period, and the question arises whether these beads were imported from abroad or made at Taxila itself. From the fact that no other beads of glazed quartz have been found elsewhere in India, and that there were only two specimens of this make among the beads from the Bhiṛ Mound, it is natural to infer that they were of foreign provenance, and this inference is supported by the peculiar shapes of some of the beads themselves. The commonest shape, as I have said, is a sort of irregular barrel roughly collared at one end and adorned with crude cross-hatchings. Nothing like this shape occurs among the other beads either from Sirkap or the Bhiṛ Mound, and there is only one other example of a heart-shaped or 'butterfly' bead. On the other hand, the cowrie, lion, tortoise and frog were characteristic motifs among the beads of the Śaka-Parthian period, being fashioned out of various other materials such as carnelian, lapis-lazuli, garnet, agate, amethyst, faience and shell; and it is hardly likely that these same motifs would have been so well represented among the glazed quartz specimens unless the latter had been made locally. On the whole, I incline to think that during the early period a few

[1] Vats, *Excavations at Harappā*, p. 401.
[2] One of these, no. 829 from the third stratum, is unpierced.
[3] In the case of these two beads, which Beck calls 'butterfly' beads, it is doubtful if the quartz was glazed.

of these glazed quartz beads found their way to Taxila from somewhere abroad, but that in the first century A.D.—probably under Parthian rule—the technique was learnt and practised for a time by local gem and amulet makers.

Process of glazing

The process of glazing quartz was practised in Egypt and Mesopotamia from very early times: in the former country from the predynastic period, in the latter from the third millennium B.C.[1] The process was not a difficult one. It consisted in heating the bead with soda until the quartz fused and flowed as a glaze over the surface. Spectroscopic examinations made by Beck showed that the surface of the beads thus treated contained a large quantity of soda, though the interior was as free from it as any ordinary quartz. When the beads were to be coloured, the colouring matter was probably mixed with the soda and put on the bead preparatory to heating.[2] The only colour now visible on any of the beads is pale blue, and there is no internal evidence to show that any other colour was used. Pale blue would give the quartz an appearance like that of beryl or aquamarine, and this no doubt is why one of these beads from Sirkap was cut to the shape of a hexagonal cylinder, which is the natural form of beryl.[3] Whether all these glazed beads were originally coloured blue or not is questionable. Some of the specimens which were once coloured show but very faint traces of the colour now; so it is quite possible that in other cases the colour has faded out altogether. Moreover, there would seem to be little purpose in glazing the beads at all, if they were not to be coloured, since the natural quartz is really more beautiful when polished than when glazed, and it is abundantly evident from the many specimens found at Taxila that no difficulty was experienced over the polishing.[4] My own view is that the real purpose of glazing was to give the quartz the appearance of beryl or aquamarine, both of which were very rare and very much prized; and that in all probability, therefore, all these beads were originally coloured. This view is supported by the testimony of Pliny (*N.H.* XXXVII, 20), who states that 'the people of India, by colouring crystal, have found a method of imitating various precious stones, beryls in particular'.[5]

Metals

Among metal beads, only a few made of cobalt, copper and iron are included in the Tables. The several hundred beads of gold and silver—spherical, disk, double-crescent, tubular, spearhead and drop, gadrooned, collared, segmented, granulated, diamond-shaped, spacer, terminal, drop- or ball-pendants, etc.—are described in detail in chapter 30 and illustrated in Pls. 190–4. Pearl beads, which include a large number of minute seed pearls, are also omitted from the Tables.

[1] Beck, *Memoir*, p. 12.
[2] *Ibid.*
[3] Pliny (*N.H.* XXXVII, 20) says that the lapidaries cut all beryls to a hexagonal form, because the colour is heightened by the reflexion from the angles. He was seemingly unaware that the hexahedral was the natural form of the beryl. Beryls, which Pliny says were rarely found outside India, came mainly from the Coimbatore district of Madras.
[4] Polishing also had this advantage over glazing that it involved no risk of the quartz being fractured by the heat, a risk to which it is peculiarly susceptible.
[5] Cf. Schoff, *The Periplus of the Erythræan Sea*, pp. 220–1, where he also quotes a passage from the *Mṛicchakatika* about such imitations.

Amber Of amber there are only nine beads, two from the Maurya stratum in the Bhiṛ Mound and seven from the Śaka-Parthian stratum in Sirkap. The amber of these beads, like that used in the encrusted bracelets ('Jewellery', ch. 30, nos. 137–8) was no doubt imported from the West. To-day a large supply of amber is obtainable from Northern Burma, and in Mughal days it was being traded to India from that country through Dacca,[1] but it is very unlikely that this source had been opened up in the first century A.D., let alone in the third century B.C. The Roman Empire obtained succinite amber in large quantities from the Baltic regions, but also simetite amber from Sicily and Southern Italy and other kinds, no doubt, from Roumania or other localities. Pliny states that the Roman traders exchanged it in India for pearls and other precious things; but the Indians may well have obtained the Baltic amber across South Russia through the medium of Scythian tribes,[2] whose influence can be seen in many of the Śaka-Parthian ornaments found at Taxila. The amber itself is too old and corroded to determine whether it is succinite, simetite or some other variety.[3]

Coral It is the same also with the few coral beads and pieces of uncut coral, which have partly disintegrated with age and lost their colour. It is impossible to say whether they came from Indian seas or the Mediterranean. The use of coral for ornaments goes back to a very early age in India. Specimens of *Favia fabus* and *Favia speciosa*, both of which have a wide distribution throughout Indian and Far Eastern Seas, have been found in the prehistoric cities of the Indus,[4] and it is likely enough that the sanctity attaching to coral, which was counted as one of their sacred gems alike by Brāhmans and Buddhists, goes back to that early age. Indian coral, however, did not possess the fine, deep pink colouring of the Mediterranean variety (*Corallium rubrum*), and it was this variety which in historic times came to be specially prized by the Indians, partly for its supposed amuletic properties, partly because it showed up so attractively against their dark skins. So great was the Indian demand for this red Mediterranean coral that by the first century A.D. it was seldom to be seen even in the localities which produced it.[5]

Faience Faience is made by breaking up quartz into small grains, adding a small amount of lime, and fusing until the surface of the quartz has flowed and cemented the whole into a solid mass. The quality of the faience depends upon the fineness of the grains and the degree of fusing. As noted in the introduction to the chapter on 'Glass' (ch. 35), faience had a very long history in India, and an unusually fine, hard variety of it, which has the appearance almost of opaque glass, was found both at Mohenjo-daro and Harappā. But most of the faience from those sites resembles the coarser and more friable material found in Mesopotamia, and it is of this

[1] Cf. Tavernier, *Travels in India*, III, xvii.

[2] Cf. Warmington, *The Commerce between the Roman Empire and India*, p. 271.

[3] It may be noted that yellow amber after long burial acquires a reddish colour, and Baltic amber may easily be mistaken for Sicilian.

[4] Cf. *M.I.C.* p. 666 and Vats, *Harappā*, p. 80.

[5] *Ency. Brit. s.v.* 'Coral', and Warmington, *op. cit.* p. 263. The regions which produced it were Sicily, Sardinia, Corsica, the Balearic Islands, and the coasts of Italy, Spain and North Africa.

commoner kind of faience that the Taxila beads and other objects are made. A feature of it is that the colouring matter is applied to the surface of the article and does not penetrate far into the core, whereas in the finer variety the colouring matter was apparently mixed with the powdered quartz and penetrated right through the core, which was also better fused than in the coarser varieties.

From the fact that only four specimens of faience have been found in the Bhiṛ Mound (all from the Maurya stratum) it may be inferred that faience was not being manufactured at Taxila during that early period. It is questionable, indeed, whether it was manufactured there until the first century A.D. Of the 222 beads recovered from Sirkap, thirteen only come from the Greek stratum and seven from the Early Śaka. These may well be strays from the Śaka-Parthian stratum above, or some of them may have been imported; but be this as it may, there can be no question that most of the 202 specimens recovered from the two top strata were manufactured locally, since their commonest shapes—cornerless cubes, double-crescents, etc.—were characteristic of other classes of beads made at Taxila and one of them at least, the double-crescent, is represented among the copper dies and moulds illustrated on Pls. 179–81.[1]

Glass beads

Turning to the glass beads, it will be seen that they have been found in all settlements, from the earliest to the latest, but that of the 3,697 specimens from the two sites, by far the largest number, namely 3,132, come from Sirkap, against only 565 from the Bhiṛ Mound. It should be noted, however, that two-thirds of the specimens from Sirkap consist of tiny disk beads of orange or yellow opaque glass, which were specially fashionable in the Śaka and Parthian periods and were found by hundreds in particular spots. Apart from these, and making allowance for the much greater area of ground excavated in Sirkap, the glass beads on that site were not relatively more numerous than on the Bhiṛ Mound.

Colours of glass

It is also to be noted that in the two lists of coloured glasses only single colours have been distinguished. Thus I have not attempted to tabulate according to their several colours the variegated 'eye' beads exemplified on Pl. I of Beck's *Memoir*. The colours found among the Bhiṛ Mound beads are amber, black, blue, cobalt blue, green, grey, orange, red, turquoise, white and yellow. The only one of these not found in Sirkap is turquoise. On the other hand, several additional colours appear in Sirkap during the Śaka-Parthian period, namely, pale blue, peacock blue, cream, yellow, opaque-white and clear yellow.

Colouring agents

As to the colouring agents, the common shade of blue was produced by metallic copper, and another and rarer shade by cobalt. Cuprous oxide as well as metallic copper were employed for opaque red and cuprous oxide in its rarer orange form for opaque orange. All the red beads from the Bhiṛ Mound, mostly made from cane, are coloured with metallic copper; those from Sirkap either with metallic copper or with cuprous oxide, in which case the specific gravity is much higher (*c.* 3·68). There are six beads, however, from the Bhiṛ Mound which are coloured

[1] Cf. 'Copper and Bronze', ch. 28, p. 582. As there suggested, these faience beads may have been fashioned in the copper moulds.

with orange cuprous oxide.[1] Black was produced by both manganese and iron, green by copper, and yellow by ferric oxide. The agents which yielded the other colours, notably brown, amethyst or violet, turquoise and pale blue, are set forth in the Table of Analyses prepared by Mr Sana Ullah and published in the *Annual Report* for 1922–3, p. 158.

Favourite colours and their provenance

If we exclude the minute disk beads of opaque-yellow and orange glass which occur in such large numbers in the Śaka-Parthian strata of Sirkap, the two favourite colours, from first to last, were blue and green, blue holding the premier place in the Bhiṛ Mound, green in the Sirkap settlements. Blue was also the favourite colour, as we have already seen, for bangles, but green bangles, curiously enough, are rarer after the second century B.C. than before. Both of these coloured glasses, as well as black, which, though not common, is found in all the Bhiṛ Mound settlements, were no doubt manufactured locally from the earliest times. As to the other coloured glasses from the Bhiṛ Mound, there is more uncertainty. The metallic red beads may have been made on the spot, but the few specimens of amber, cobalt blue, grey, turquoise and opaque-orange and yellow are more likely to have been imported. This, however, is merely an inference based on the paucity of their numbers. As to the later Sirkap collection, the considerable number of amber-coloured and grey beads of various shapes, and the still larger numbers of minute yellow and orange disks from the Śaka-Parthian settlement suggest that by the first century A.D. the local glass-makers had learnt how to produce these colours also. On the other hand, several of the rarer coloured beads which appear for the first time in the Śaka-Parthian period, notably: cobalt, pale and peacock blue, cream, violet and blotched, were in all probability imported from the Mediterranean coasts along with the glass vessels described in chapter 35 and many other objects. In this connexion it should be remembered that the glass industry never developed to any extent at Taxila. Beads and bangles, and possibly a few other simple objects, were produced there, but every one of the glass vessels so far unearthed was an import from Western Asia or the Mediterranean coasts, and in view of the fact that coloured glasses used in these vessels[2] are identical with those used in the beads—blue, green, jade, amber, amethyst, opal-white, etc.—it is natural to conclude that the beads came from the same source as the vessels.

Terra-cotta beads

Of the sixty-two beads of terra-cotta, forty-nine come from the third stratum of the Bhiṛ Mound, and only thirteen from all the other strata put together. This may be explained by the fact that as a result of Alexander's invasion a special and quite notable impetus was given for a time to ceramic art—an impetus which can be seen in the vessels of Greek black and embossed ware which make their appearance at this time. ('Pottery', ch. 23, nos. 226–8.) This accounts for the classical design of the eleven beads listed under 'Terra-cottas', ch. 24, no. 145, which are clearly

[1] For one of these, cf. Beck, *Memoir*, p. 25; but it is not clear why in this instance the specific gravity is as low as 2·55.

[2] See, for example, 'Glass', ch. 35, no. 13—a fragment of a mosaic bowl, probably made in Campania, containing tesserae of eight different colours.

imitated from the familiar spacers of Greek necklaces (e.g. *B.M. Cat. of Jewellery*, no. 1951 and 'Jewellery', ch. 30, nos. 56–8 and Pl. 193), though the beads are threaded lengthwise instead of from side to side, and the material precludes the workmanship from being other than coarse and crude. Further corroboration of this classical influence may also be seen in the rather later square barrel bead[1] figured in Beck's *Memoir*, Pl. x, 8, which is finished with the same characteristic black glaze that is found on Greek pottery and possibly also in the 'inverted-flower' beads ('Terra-cottas', no. 144) copied from prototypes in more substantial materials, like the white opaline glass bead figured in Beck, *Memoir*, Pl. IX, 1. Other shapes of the fourth and third centuries B.C. seem more likely to have been imitated from Indian originals, namely, the pomegranate bead ('Terra-cottas', no. 142 and Pl. 136, *j*)—a design which is found also in contemporary rattles ('Terra-cottas', no. 115); the pyramidal pendant (*ibid.* no. 141), of which there are some superb examples among contemporary agate and carnelian beads; and the collared barrel (Beck, Pl. x, 10). The knobbed ('Terra-cottas', no. 140) and panelled (Beck, Pl. x, 9) specimens might equally well be Indian or Greek.

SHAPES AND VARIETIES

Comparison with pre-historic shapes

The majority of the basic shapes represented among the Taxila beads go back to a very remote age in India. Thus among the beads from Mohenjo-daro and Harappā referable to the third and fourth millennia B.C. the spherical, cylindrical, barrel and disk shapes were especial favourites; but besides these we also have specimens from those sites of the oblate, hemispherical, lenticular, gadrooned, segmented, tabular, bicone and cone, as well as various kinds of spacers, terminals and pendants. Even the eye-beads of which I shall speak presently were anticipated at Harappā by several specimens in etched carnelian, steatite and faience.[2] There is one marked difference, however, between these early prehistoric beads and the specimens from Taxila; for, whereas during the Indus period there was a general tendency to round off the surface of beads, in the later historic period, it became the fashion to cut them as often as not in facets, with the idea, no doubt, of enhancing their brilliancy and lustre. Take, for example, the barrel type, which is one of the commonest. In the Indus period we have abundant examples of the long, standard and short varieties of this type, but they are invariably either round or oval (that is, flattened) in section. At Taxila, we also have the same rounded varieties, but we also have a large number of angular barrel beads, viz. rectangular, triangular, pentagonal, hexagonal and octagonal. Similarly, the Indus cylinder beads are round in section, while at Taxila a considerable percentage are rectangular, hexagonal or flat hexagonal. Bicone beads are less common in the Indus period and do not, therefore, offer such a good basis for comparison, but they, again, are invariably rounded in section, whereas the bicone group at Taxila

[1] There are a number of other terra-cotta beads of this shape from the Bhiṛ Mound.
[2] Vats, *Harappā*, Pl. CXXX, 4*b*, 43, 48, 49.

includes tabular, square, pentagonal and hexagonal variants. Other angular and faceted types also found at Taxila, but not on the Indus sites, are the cornerless cube and twenty-four- and twenty-six-sided. Allowing, however, for this change in fashion from the round or curvilinear to the angular and faceted, there is a close basic affinity in shape between these prehistoric and historic beads. Indeed, the only new types of importance that distinguish the Taxila beads are the scaraboid, leech and pyramidal pendant, though to these must be added a number of other novelties such as collared and granulated beads and a great variety of pendants, many of an amuletic character.

Scaraboids

Scaraboids are found in all strata from the fifth century B.C. onwards, and were probably introduced from Achaemenid Persia. The shape was a favourite one for many centuries in Western Asia and Greece, particularly for engraved seals attached to a swivel, and a number of scaraboid seals of agate, chalcedony, slate, glass and indurated clay have also been found at Taxila, dating mainly from the fourth and third centuries B.C. (cf. 'Seals', ch. 34, Class III). Used as a bead the scaraboid was also in vogue during the fourth and third centuries B.C., but it became more fashionable in the first century A.D., owing no doubt to the fondness of the Parthians for anything savouring of Hellenism. The specimens from the Bhiṛ Mound are made of carnelian, quartz, agate, chalcedony, onyx, steatite and black and green glass. The oldest are of agate.

Leech beads

The leech bead, so called from its resemblance to the leech fibulae of Europe, occurs chiefly in the Maurya period, though a few specimens have been found in earlier strata of the Bhiṛ Mound. The three solitary specimens found in Sirkap are likely to have been survivals from the earlier period. These leech beads are too few (only twenty-one, all told, come from the Bhiṛ Mound) for us to suppose that they were manufactured at Taxila itself. On the other hand, the exceptional quality of the agates of which they are made, and the rare technical skill with which they have been cut and polished—a skill which is peculiarly characteristic of the Maurya period—leave no doubt whatever that they were the handiwork of Indian craftsmen. The probability, therefore, is that they were produced at one or other centre of the agate industry like Barygaza or Ujjayinī.[1] A fine specimen of the leech bead in agate, dating from the third millennium B.C., was found at Harappā,[2] and Beck states that beads of the same type in agate, limestone and faience were turned up recently at Ur, but he does not give any particulars of their date. It is not unlikely that they were of Indian origin, traded from Barygaza or thereabouts up the Persian Gulf; for Beck rightly observes that these leech beads seem to be peculiarly associated with India and there was a big Indian trade with Mesopotamia from very early times. Whether the Indian leech bead originally derived from the same source as the European or whether it was independently evolved is a question that we have not enough data as yet to determine. The many leech-and-pendant earrings of gold found in Sirkap appear to derive rather from Western prototypes than from the leech beads described above. (Cf. 'Jewellery', Class I, *c* and nos. 9–25,

[1] Cf. 'Stone Objects', ch. 25, pp. 476–8. [2] Vats, *Harappā*, Pl. CXXXIX, 1.

and the references there given for the leech motif in fibulae; and for a leech bead of banded agate in the British Museum, cf. *B.M. Cat. of Jewellery*, no. 2309.)

Pyramidal and barrel beads

The remarks made above about the remarkable beauty of most of the agate leech beads dating from the third century B.C. apply also to the pyramidal pendants of agate and onyx which are found only in the Maurya stratum of the Bhiṛ Mound[1] and not at all in Sirkap. These, too, no doubt came from some centre of the bead industry in Western India, where these particular stones were marketed. I observed earlier in this chapter that certain types of beads are fashioned out of particular stones or other materials. The leech and pyramidal pendant are cases in point, both being made almost exclusively of banded agate and only very rarely of carnelian or onyx, which frequently occur in the same localities as agate. Another good example is afforded by triangular barrel beads, which, like the leech and pyramidal pendant, are found almost exclusively in the Bhiṛ Mound, but are not confined to the Maurya period. The barrel bead takes a variety of forms. Apart from the round—standard, long and short—types, which in the case of the Bhiṛ Mound constitute nearly half of the total number (291), there are several other types with bevelled or faceted surfaces, one being rectangular, another triangular, another hexagonal, a fourth pentagonal, and a fifth octagonal. Of the two last types only one example apiece has come from the Bhiṛ Mound, and we need not, therefore, take account of them. But of the other three types, the specimens are plentiful, viz. forty-seven triangular, forty-six rectangular and thirty-nine hexagonal. Now, whereas the triangular barrel beads are exclusively of carnelian, the hexagonal ones are made of a variety of materials including amethyst, carnelian, colourless and yellow quartz, agate and glass; and the square ones mainly of carnelian, shell and terra-cotta. From this it may reasonably be concluded that the triangular type was not manufactured at Taxila, but was imported from some centre of the carnelian industry, for had this shape been characteristic of the local ateliers, we may be sure that we should have found some specimens made of other materials besides carnelian. Conversely, the many different stones and glasses used for the hexagonal beads suggest that these were probably made at Taxila itself. As to the square-barrel pattern, all that can be said is that the preponderance of shell and terra-cotta specimens shows that this pattern was favoured by the poorer classes and prima facie, therefore, it was likely to have been a product of local industry.

Eye-beads

A type of bead that calls for special notice is the 'eye-bead'. It is a type that was well known throughout the ancient Orient, occurring in Mesopotamia, Persia and India[2] as early, at least, as the third millennium B.C. and penetrating in later (Han) times as far east as China.[3] Such beads were highly prized for their apotropaic powers in averting the evil eye. Some were made of natural stones such as onyx

[1] The solitary specimen found just below the Maurya stratum is evidently a stray.

[2] For Indian specimens of the prehistoric period, cf. Vats, *Harappā*, Pl. cxxx, nos. 42, 43, 48, 49.

[3] For eye-beads and other articles of glass from the old Lo-yang tombs in China, see W. P. Yetts, 'Glass in Ancient China—a problem under dispute' in *Illustrated London News* (12 May 1934), pp. 732–3. The author advances good reasons for assigning the Lo-yang tombs to the Han period.

or banded agate, which were so chosen and shaped that the different layers formed a circular eye surrounded by one or more bands. Others were made with a basis of stone or shell, on which patches of a different coloured stone were cemented in order to form the eyes. Others, again, were made of carnelian or agate, with the eyes etched in on the surface; and others of variegated glass in imitation, more or less, of natural stones.

Type of eye-beads at Taxila

The earliest and simplest type at Taxila is a shell bead with patches of crystal quartz cemented on. Fifteen of this type were found in the fourth settlement on the Bhiṛ Mound, which dates from the sixth to fifth century B.C., against two of stratified glass and one of agate, which may have been strays of a later date. By the third century B.C. these shell and quartz beads were evidently going out of fashion and giving place to stone or glass ones. The Maurya settlement (stratum II) yielded only four eye-beads of shell and quartz against thirteen of stone and seven of stratified glass;[1] and Sirkap yielded none at all of shell, the fifteen eye-beads from that site being exclusively of stone or glass.

Among the eye-beads Mr Beck includes six specimens of carnelian, agate and chalcedony with numerous tiny spots etched all over the surface.[2] As I see no sufficient reason for classifying these as eye-beads, I have not taken account of them in the foregoing figures, though they are included in the Tables.

Pendants and miscellaneous shapes

Turning, finally, to the group of pendent and miscellaneous beads, we observe that they include a variety of novel shapes, most of which are not found at all among the prehistoric beads from Mohenjo-daro and Harappā. Some of these beads are simple and conventional shapes, which probably had no special significance or amuletic value. Such are the ball, drop, bud, club,[3] pear, vase, cylinder, cone, pyramid, flower, quatrefoil and fluted types. Even among these very simple shapes, however, fashions were apt to change. Thus, the ball,[4] pyramid and cone types are found only in the Bhiṛ Mound; the fluted only in Sirkap. The bud pendant, again, which was common in the Maurya stratum, is scarcely found at other times; and, similarly, the vase pendant, which became fashionable under the Parthians, is represented by only five specimens from all the other settlements put together.

Amulets and sacred symbols

Other beads in this group take the form of familiar Indian amulets and charms—notably the claw or tooth, dagger, axe and double-axe, *nandipada* and crescent-edged wheel. All of these motifs come from the Bhiṛ Mound. From Sirkap the dagger, double-axe and crescent-edged wheel are absent, but, on the other hand, we have there the shell, *triratna*, fist and comb motifs, which are absent from the Bhiṛ Mound.

Apart from the beads, several examples of the claw or tooth amulet have been found at Taxila, the finest being the lead and gold claw, adorned with a granulated

[1] The thirteen stone beads from this stratum comprised two of etched carnelian, two of chalcedony and nine of agate. Some of the latter were cemented, some natural stones.

[2] E.g. Beck, *Memoir*, Pl. II, 5, 16, 26, 27, 29.

[3] For the club motif in pendants, see 'Jewellery', ch. 30, no. 91 and references there given.

[4] For a number of silver beads of ball type from the Bhiṛ Mound, cf. 'Jewellery', ch. 30, no. 55.

pattern, which is figured in Pl. 191, *o* ('Jewellery', ch. 30, no. 80); another of stone figured in Pl. 142, *l* ('Stone Objects', ch. 25, no. 135), and a third in Pl. 199, no. 17 ('Bone and Ivory', ch. 32, no. 17). Claw and tooth amulets were probably as much prized in Ancient India as they were among the Greeks and Romans, and it is very doubtful if these examples at Taxila should be ascribed to Western influence.[1] The dagger-beads are paralleled by the small dagger-pendants of bone and ivory illustrated in Pl. 199, nos. 13–16; and the axe-heads have their counterparts among the amulets or symbols on the two necklaces portrayed in relief on the east pillar of the north gate at Sāñchī.[2] In all probability, too, the beautiful neolithic axe-heads found in Sirkap ('Stone Objects', ch. 25, nos. 1–3) were in use as talismans. In Vedic times, the axe amulet was used to restore an unjustly slandered man to honour.[3]

The *nandipada* or taurine symbol, which was commonly associated with the worship of Śiva, and the *triratna*, which was specially adopted by the Buddhists as a symbol of their Trinity, are too ubiquitous and well known to need explanation.[4] Of the wheel surrounded by crescents there is only one example in the round—a flat carnelian bead from the Bhiṛ Mound,[5] but the same motif is found in an etched carnelian, probably from Taxila, which is now in the Fitzwilliam Museum at Cambridge[6] and was common on punch-marked coins.[7] Among the Buddhists, the crescents round the wheel were commonly replaced by *triratnas* or umbrellas, as, for example, on the standard 'Wheel of the Law' on the west pillar of the south gate at Sāñchī,[8] and the coin of Menander illustrated in the *B.M. Cat. of Greek and Scythic Coins in India*, Pl. XII, 7.[9]

[1] For references to Greek and Roman examples, see 'Jewellery', ch. 30, no. 80. Some Indian and Burmese examples of the use of tiger claws, hog-deer teeth, etc., are mentioned by W. Crooke in *E.R.E.* III, p. 448.

[2] Cf. Marshall and Foucher, *Monuments of Sāñchī*, Pl. XXXVII; and for details of the amulets, Maisey, *Sāñchī*, Pl. XXXIX, figs. 15, 16. There is a battle-axe head also among the amulets or symbols affixed to the head-dress of a *yakshī*-queen (?), an exquisitely fine terra-cotta relief which I believe is in the Indian Institute at Oxford—the finest relief of its kind that I have seen. In both of these instances the amulets may have been symbolic of royal power; for in the case of the Sāñchī pillar Foucher has shown that the whole lotus composition is a symbolic representation of the Buddha.

[3] G. M. Bolling in *E.R.E.* III, p. 471.

[4] The *triratna* is here distinguished from the *nandipada* or taurine by the presence of a third point between the two horns of the crescent. The latter symbol is commonly found on the punch-marked coins and early tribal coins of India (e.g. Allan, *Coins of Ancient India*, CXXVIII, CXXXVI–VII, 140–3, 234–5, etc.). The former is also frequent on some of the tribal coins (*ibid.* XCV, C, CI, 137, 159–67, etc.). Among the antiquities of Taxila good examples occur on two gold ornaments ('Jewellery', ch. 30, nos. 101, 147, *q.v.*), on seal no. 25 (Pl. 208, no. 54), on a stone stool-quern ('Stone Objects', ch. 25, no. 17 = Pl. 140, *i*) and on the gold finger-ring no. 24 (Pl. 197).

[5] Beck, *Memoir*, Pl. IV, 16.

[6] *Ibid.* Pl. II, 31.

[7] E.g. Allan, *op. cit.* XCV, XCVI, 129, 148–9, etc.

[8] Marshall and Foucher, *Monuments of Sāñchī*, Pl. XVIII, *a*.

[9] See also my remarks on Menander's coinage, vol. I, pp. 33–4 and footnotes. The crescent by itself, as an amuletic motif, is exemplified at Taxila on the gold and silver pin no. 101 (Pl. 191, *x*), on the copper pendant no. 21 (Pl. 172, *c* and 181, *b*), on the copper hair-pins figured in Pl. 182, *p*, nos. 11 and 13, and on the stone-mould figured on Pl. 142, *r* ('Stone Objects', no. 144).

Fist, shell and comb-shaped beads

Of the three amulet devices which occur among the Sirkap, but not among the Bhiṛ Mound, beads, viz. the comb, shell and fist, the last mentioned was almost certainly borrowed from the West; for, as I have pointed out elsewhere,[1] the closed fist with the thumb held between the first and second fingers—the familiar *fica* or *digitus infamis* gesture—was a common form of apotropaic amulet among the Greeks and Romans, but, apart from the two examples from Sirkap,[2] quite foreign to India. Many beads cut from shell have been found at Taxila—260 in the Bhiṛ Mound, 1,443 in Sirkap,[3] and small natural shells like *Engina mendicaria* and *Pyrene flava*[4] were strung on necklaces or worn as pendants, but it was not until the first century A.D. that we find the natural cowrie (*kaurī*) shell imitated in semi-precious stones.[5] The cowrie is still used as an amulet against the evil eye in the Panjāb[6] and probably had the same virtue in ancient times. Shells of the same class which were used as amulets in ancient Greece have been thought to derive their apotropaic power from their resemblance to the female organ.[7] The comb device had a long history in India, going back to the times of Mohenjo-daro and Harappā, where it is found on painted pottery and possibly as a pictogram on some of the Indus seals.[8] In the early historic period it is represented on punch-marked coins,[9] and at Taxila some striking examples are afforded by the two bone hair-pins illustrated in Pl. 206, nos. 13 and 18 ('Bone and Ivory Objects', ch. 32, no. 26), where the comb seems to be a substitute for the open hand familiar on contemporary Graeco-Roman pins. It may be noticed, too, that the hair-comb was employed as an amulet in Japan.[10]

Animal beads

Besides the foregoing inanimate objects, there are a certain number of living things simulated in beads which in most cases had some religious or superstitious significance. These animal beads are not many;[11] they comprise three or four specimens from the Bhiṛ Mound, nineteen from Sirkap—mostly from the late Śaka-Parthian level—and about fifteen from the Dharmarājikā and other sites. The animals represented are: lions (seven), birds (eight), frogs (nine), tortoises (six), elephants (two), ram, monkey, bull and scorpion (one each), but the last is questionable. The lion, of which there are five specimens from Sirkap, but none from the Bhiṛ Mound, was symbolical of the Buddha, the 'Lion of the Śākyas (*Śākyasiṁha*)' and likely, therefore, to be popular in a stronghold of Buddhism

[1] Beck, *Memoir*, p. 32, n. 3.
[2] Cf. Beck, Pl. x, 1.
[3] For illustrations, see *ibid.* Pl. VIII.
[4] Cf. p. 671 *supra*, nos. 14, 15.
[5] Beck, Pl. IV, 26.
[6] For a conch-shell pattern engraved on an ivory comb at Taxila, cf. 'Bone and Ivory Objects', ch. 32, no. 22 (Pl. 199).
[7] Cf. L. Deubner, in *E.R.E.* III, p. 436, where he quotes from Jahn and Abt. The resemblance of the cowrie to the closed lotus leaf (symbol of birth) may also be noted. For a typical example of such leaves, which occur *passim* in early Indian reliefs, see Smith, *The Jain Stūpa and other Antiquities of Mathurā*, Pl. XXIV, fig. 1.
[8] *M.I.C.* p. 377.
[9] Allan, *op. cit.* XXV, LXIV, 55.
[10] *E.R.E.* III, p. 449.
[11] For illustrations of most of them, see Beck's *Memoir*, Pl. VII.

such as Taxila.[1] Closely associated also with Buddhism was the Brahmani duck (*haṁsa*), which seems to be the bird chiefly portrayed among these beads, though some of the carving is too rough and crude for its identity to be certain.[2] One of the birds, which is evidently not a duck, is shown perched on a conventional tree, as it also is on the bone hair-pin figured in Pl. 206, no. 16 ('Bone and Ivory Objects', no. 27). The same bird-on-tree motif is also found on certain punch-marked coins.[3] This particular bead is a fine bit of carving in carnelian, dating from the third century B.C. and contemporary, therefore, with the punch-marked coins referred to. Another unusually well-carved bird, coming from Sirkap and about three centuries later, is a grey Indian crow made of banded grey and black onyx, and specially commended by Beck for the quality of its workmanship.[4] Whether it had any amuletic value is uncertain. It is so unusually clever and so true in colouring and line that one suspects that its author had only his art in mind when he carved it. Frogs and tortoises both occur among the beads from the Dharmarājikā, and were evidently used as amulets by the Buddhists, although there is nothing I know of to connect them specially with that religion. Both are found among the symbols on punch-marked coins[5] and the frog among those on tribal coins also;[6] both also are figured inside the terra-cotta ritual tanks from Sirkap described among the 'Terra-cotta Objects' (ch. 24), nos. 155–63. The elephant of glazed steatite with a carnelian eye figured by Beck[7] resembles the elephants with unduly large eye on punch-marked coins. No doubt the carnelian eye in this case was meant to be apotropaic. For the ram we have parallels in the head of fossilised ivory ('Bone and Ivory', ch. 32, no. 119), in the scaraboid seal no. 10, and in the ram's head handles of frying-pans ('Copper and Bronze', ch. 28, nos. 298–9), though whether in the last case they were supposed to have any magical value for the viands cooked it would be hard to say.[8] The monkey and bull motifs call for no particular notice. The so-called scorpion bead is nothing more than a bud surmounted by a crescent which may or may not be intended to represent a scorpion.[9]

Summary

Taken as a whole, the Taxila beads constitute one of the richest and most varied collections of these small objects ever recovered from a single site. The finest of them date from the period of Maurya rule in the third century B.C., when the

[1] See also the fine lion of crystal quartz from the Dharmarājikā illustrated on Pl. 49, *b*, and the lion seals nos. 9 and 11 (Pl. 207).

[2] The Brahmani duck is frequently portrayed on Early Buddhist monuments, e.g. on some of the Aśoka pillars and on the gateways of the Great Stūpa of Sāñchī. Cf. also 'Seals', ch. 34, no. 15; 'Bone and Ivory Objects', ch. 32, no. 21; 'Shell Objects', ch. 33, nos. 36 and 37.

[3] Allan, *op. cit.* XXXI, 42. For examples from Luristān of the late prehistoric period, cf. E. Herzfeld, *Iran in the Ancient East*, p. 155 and fig. 275.

[4] Cf. Beck, *Memoir*, p. 18 and Pl. VII, 15.

[5] Allan, *op. cit.* XXX, LXVI, 27, 29, 74, 78. Cf. *infra*, Pl. 231, no. 35.

[6] *Ibid.* CXLIII, 253.

[7] *Memoir*, Pl. VII, 11.

[8] Among the Romans, and perhaps among the Greeks, the ram's head was a symbol of hospitality, and it is quite possible that it had this meaning in connexion with the frying-pans.

[9] For a scorpion-like creature on a finger-ring, cf. 'Finger-rings', ch. 31, no. 11 (Pl. 197).

Indian jeweller was unsurpassed in the cutting and polishing of hard gems. Taxila, being an outlying city of the Maurya Empire, can hardly at this period have attracted the best of India's artists and craftsmen, who would have been more likely to find scope for their talents in the great and thriving cities of India proper—cities like Pāṭaliputra, Vaiśāli, Vidiśā, Ujjayinī, Nāsikā or Pratishṭhāna. So far, indeed, as these beads are concerned, it may be regarded as certain that, for the most part, they were made at centres of the gem industry in Western India and the Dekhan, where the natural stones were abundant—a fact which accounts for their relative paucity at Taxila. Although, however, the Maurya beads are of superlative quality, they are not very varied in design. Much greater variety is perceptible during the Śaka-Parthian period, particularly in the first century A.D., when the establishment of Parthian rule at Taxila led to an influx of many *objets d'art*, personal ornaments and the like from the Western world, including beads of novel shapes and made of novel materials.

In conclusion I wish to repeat what I said at the beginning of these notes—that they are not meant to contain an exhaustive account of the beads, but only to be complementary to Mr Horace Beck's well-illustrated *Memoir* on the subject, which the reader should consult.

Chapter 38. COINS

THE coins recovered at Taxila were many and of great variety. In all, they totalled over 12,000, of which 1,579 came from the Bhiṛ Mound and 7,665[1] from Sirkap. These are the two largest and most valuable groups, and their value is enhanced by the additional light which the stratification of the two sites throws on their history. Other groups, large and small, were as follows: Dharmarājikā, 1,546; Kālawān, 369; Bhamāla, 316; Chir Tope, A, B, C and D, 313; Jauliāñ, 175; Sirsukh, 106; Mohṛā Morādu, 84; Jaṇḍiāl, 81; Mahal,[2] 43; Pippala, 27; Lālchak, 18; Bādalpur, 10; Bhallaṛ Stūpa, 9; Hathiāl, 6; Kholay, 5; Ghai, 3; Seri, 2; Rattā Piṇḍ, 1.

Two important hoards from Bhiṛ Mound

The 1,579 specimens from the Bhiṛ Mound include two important hoards: an older one dating from the close of the fourth century B.C. and comprising 1,167 silver coins, and another of some three generations later, comprising 167 coins. The circumstances in which these two hoards were found and the various articles, mainly of jewellery, which accompanied the coins, are described on pp. 105–6 and 110–111. The coins themselves are discussed at length in Mr Walsh's article below (ch. 40) which is a résumé of a lengthier *Memoir* of his on the same subject published by the Indian Archaeological Department.[3] Some further comments on the coins are also made by Dr John Allan (pp. 854–5 *infra*). Dr Allan infers that both hoards were buried at the same time—probably in the early part of the second century B.C., but this inference, which is at variance with his own previously expressed view,[4] is hardly convincing; for not only do the levels at which the two hoards were found point to the larger one having been buried before the smaller, but the coins in the larger hoard are, as Mr Walsh has rightly shown, of a definitely earlier type than the bulk of those in the smaller hoard. In my opinion there can be virtually no doubt that: (*a*) The larger hoard was buried round about 300 B.C. or possibly a little later. (*b*) The oblong bar coins in that hoard (Pl. 234, nos. 1–7), which were in a worn condition at the time of its burial, were issued in the fourth or possibly in the late fifth century B.C. (*c*) The punch-marked coins which constitute the bulk of the larger hoard (Pl. 234, nos. 24–48 = *B.M. Cat.* Class 6), and the minute coins (Pl. 234, nos. 8–23) were being issued about 300 B.C., when the hoard was buried, but probably came, as Dr Allan conjectures, from somewhere outside the North-Western area. (*d*) The smaller hoard was buried about the end of the third century B.C. (*e*) The latest class of punch-marked coins found in that group (cf. Pl. 234, nos. 49–59 = *B.M. Cat.* Class 2) were current at that time.

[1] Including some that are too defaced to be identified.

[2] Mahal is in Sirkap, but the finds made there are considered separately from those made in the lower city.

[3] *Memoir* no. 59.

[4] *B.M. Cat. of Anc. Indian Coins*, pp. xlii and lvi–lvii.

Other coins from Bhiṛ Mound

Besides these two important hoards, the Bhiṛ Mound yielded 245 other coins found either singly or in small groups among the ruins. Sixty-three of these were punch-marked, 179 local Taxilan, and one each of Demetrius, Azes I and Vāsudeva. Of the sixty-three punch-marked, twenty-eight belong to the oldest classes of coins struck in the North-West, eight being 'long-bars' (five silver and three copper) and twenty 'round and concave' (thirteen silver and seven copper). The former are of the type illustrated on Pl. 234, nos. 1–7,[1] the latter of the type illustrated in the *B.M. Cat.* Pl. 1, nos. 4–6. The remaining thirty-five specimens are the more usual kinds of later punch-marked issues, twenty-three being rectangular (sixteen silver and seven copper), and twelve round or oval (eight silver and four copper). Twenty-one of these thirty-five coins are referable to Class 2 of the *B.M. Cat.*, four to Class 1 or 2, and one only to Class 6,[2] while nine are indistinct.

Stratification and age of punch-marked coins

From the Stratigraphical Chart on p. 103, it will be seen that of the twenty-eight coins belonging to the earliest classes six were found in the fourth stratum, nine in the third, twelve in the second, and one in the first. On the other hand, of the thirty-five later issues one only came from the fourth, none from the third, thirty-two from the second, and two from the first stratum. These figures corroborate the evidence as to age supplied by the two hoards. Thus the fact that more than half the 'long bar' and contemporary 'round and concave' coins were found in the third and fourth strata makes it clear that these two classes must date back to the fourth or possibly the fifth century B.C. Although six of these coins were found in the fourth stratum, only one (which may well have been a stray) was found below a depth of 12 ft., and assuming that the others were buried, intentionally or otherwise, 2 or 3 ft. beneath the actual remains to which they properly appertained, they would be referable to the third rather than the fourth stratum. Probably we shall not be far from the truth if we put the first issue of these, the earliest types of punch-marked coins, round about 400 B.C.

Even more explicit is the evidence afforded by stratification in regard to the latest punch-marked coins of the type illustrated at the foot of Pl. 234 (=*B.M. Cat.* Class 2, group 1); for in their case all except one (p. 754, no. 44) were found within 5 ft. of the surface, and there can be no room for doubt that they date from the close of the third or opening years of the second century B.C.

As to the other and more elaborate class of punch-marked coins which make up the bulk of the larger hoard (Pl. 234, nos. 24–48), it is noteworthy that only a single specimen (Pl. 234, no. 48) was found independently on the Bhiṛ Mound site; and this again supports Dr Allan's view that coins of this class were not struck in the North-West.

Punch-marked coins current until close of first century A.D.

Although, after the break-up of the Maurya empire, punch-marked coins probably ceased to be issued in the North-West, they must have continued to circulate fairly freely up to at least the close of the first century A.D. This is clear from the finding of forty specimens of these coins at all levels in Sirkap, viz. six in the Greek stratum, three in the Early Śaka, nineteen in the Later Śaka-Parthian, and

[1] Cf. *B.M. Cat.* Pl. 1, nos. 1–3.

[2] Viz. R.U.C. (ch. 39), no. 48.

LIST OF PUNCH-MARKED COINS OTHER THAN THOSE CONTAINED IN THE TWO HOARDS FROM THE BHIṚ MOUND. Cf. p. 751.

Serial no.	Description and Field Register	Stratum	Weight in grains	Obverse	Reverse
				BHIṚ MOUND	
	OBLONG BAR. AR				
1	AR Bm. '21–139	IV	155·0	Double impression. Six-armed *vajra* with extra bar and central dot. (Pl. 230, no. 1 symbol)	
2	AR Bm. '21–909	II	163·0	Do.	
3	AR Bm. '21–1,476	II	158·2	Do. without extra bar (*ibid.* no. 2)	
4	AR Bm. '19–437	II	153·5	Do. with an extra bar (*ibid.* no. 1)	
5	AR Bm. '37–431	III	164·7	Do.	
	ROUND AND CONCAVE. AR				
6	AR Broken. Bm. '37–94	III	14·3	Single impression. Six-armed *vajra* with an extra bar and central dot (*ibid.* no. 1)	Indistinct
7	AR Bm. '30–320	III	35·0	Do.	
8	AR Broken. Bm. '30–865	III	15·9	Do.	
9	AR Base. Broken. Bm. '30–926	IV	18·8	Do. with extra dot and cross at centre (*ibid.* no. 5)	
10	AR Bm. '30–1,098	IV	35·4	Do. with extra dot and dot at centre (*ibid.* no. 3)	
11	AR Bm. '20–1,244	III	63·6	Do. with an extra bar and dot at centre (*ibid.* no. 1)	
12	AR Broken. Bm. '21–261	IV	14·2	Do. with an extra dot and cross at centre (*ibid.* no. 5)	
13	AR Tiny. Bm. '20–747	II	7·5	Do. with cross at centre (*ibid.* no. 4)	
14	AR Small. Bm. '20–1,100	II	19·2	Do. with an extra dot and cross at centre (*ibid.* no. 5)	
15	AR Base. Bm. '21–639	II	33·4	Do. with an extra bar and dot at centre (*ibid.* no. 1)	
16	AR Base. Bm. '24–241	II	13·8	Do.	Indistinct
17	AR Tiny. Bm. '19–450	II	6·9	Do. with an extra bar and dot in centre (*ibid.* no. 1)	
18	AR Broken. Bm. '19–1,013	II	16·3	Do.	Indistinct
	OBLONG BAR. Æ				
19	Æ Bm. '19–983	III	155·2	Do. without an extra bar (*ibid.* no. 2)	
20	Æ Bm. '21–861	I	132·6	Double impression. Six-armed *vajra* with dot in centre (*ibid.* no. 2)	
21	Æ Bm. '19–1,498	IV	161·6	Do.	
	ROUND AND CONCAVE. Æ				
22	Æ Bm. '20–1,391	II	34·3	Single impression. Six-armed *vajra* with central dot (Pl. 230, no. 2)	
23	Æ Bm. '21–1,481	III	40·5	Do.	
24	Æ Bm. '20–1,700	III	36·2	Do.	
25	Æ Bm. '20–1,407	III	41·7	Do. with extra bar and central dot (*ibid.* no. 1)	
26	Æ Bm. '19–1,499	IV	13·7	Do. with central cross (*ibid.* no. 4)	
27	Æ Bm. '36–500	II	18·1	Do. with an extra dot and central dot (*ibid.* no. 3)	
28	Æ Bm. '36–609	II	41·2	Do.	

Serial no.	Description and Field Register	Stratum	Weight in grains	Obverse	Reverse
				BHIR MOUND (*cont.*)	
	RECTANGULAR. AR			LATER ISSUES (cf. Pls. 230–4)	
29	AR Base. Bm. '20–377	II	42·2	Nos. 6, 7, 25	Indistinct
30	AR Base. Bm. '20–414	II	45·8	Nos. 6, 7, 25, etc.	No. 60
31	AR Bm. '20–636	II	50·4	No. 31, indistinct	
32	AR Bm. '20–636	II	48·5	Nos. 6, 7, 25	
33	AR Bm. '20–678	II	47·5	Nos. 6, 7, 11, 30, 36	No. 46
34	AR Bm. '20–1,286	II	73·6	Indistinct	No. 47
35	AR Bm. '20–1,540	II	30·5	Nos. 6, 7, 11, 25, 36	No. 46
36	AR Bm. '20–1,581	I	49·5	Nos. 6, 25	No. 48
37	AR Bm. '20–1,617	II	51·7	Nos. 6, 25, 40	No. 53
38	AR Bm. '21–780	II	47·4	Nos. 25 (?), 34	Indistinct
39	AR Bm. '21–904	II	49·7	Nos. 6, 7, 25	Indistinct
40	AR Bm. '21–931	II	46·1	Nos. 6, 7, 25	Indistinct
41	AR Bm. '30–61	II	46·2	Nos. 7, 25, indistinct	No. 46
42	AR Bm. '29–778	II	44·7	Nos. 6, 7, 25, 35, indistinct	Indistinct
43	AR Bm. '24–148	II	34·6	Nos. 6, 7, 25, 35	Defaced
44	AR Bm. '24–960	IV	45·5	Nos. 6, 7, 41, indistinct	No. 54
	ROUND. AR				
45	AR Base. Bm. '20–212	II	43·1	Nos. 6, 7, 26, 32	No. 46
46	AR Bm. '20–39	II	48·3	Nos. 11, 39, indistinct	Indistinct
47	AR Bm. '20–1,633	II	43·6	Nos. 7, 35, indistinct	No. 48
48	AR Bm. '21–16	I	50·7	Nos. 6, 10, 12, 15, 25	
49	AR Bm. '21–1,615	II	47·0	Nos. 6, 7, 11, 25	No. 46
50	AR Bm. '30–447	II	48·7	Nos. 6, 25, 34	Indistinct
51	AR Bm. '30–1,076	II	49·5	Nos. 6, 7, 25, 34	No. 49
52	AR Bm. '30–21	II	50·0	Nos. 6, 25, 32	Indistinct
	RECTANGULAR. Æ				
53	Æ Bm. '20–1,561	II	52·2	Nos. 6, 7, 25, indistinct	Indistinct
54	Æ Bm. '21–296	II	42·3	Nos. 6, 7, 11, 25, 36	No. 46
55	Æ Bm. '21–1,547	II	39·1	No. 11, indistinct	Defaced
56	Æ Bm. '24–188	II	46·6	Nos. 6, 7, 35, indistinct	No. 46
57	Æ Bm. '19–412	II	27·2	Defaced	Defaced
58	Æ Bm. '36–496	II	45·0	Nos. 6, 25, 35	No. 48
59	Æ Bm. '36–527	II	41·7	Defaced	Defaced
	ROUND. Æ				
60	Æ Bm. '21–677	II	42·4	No. 42, indistinct	Defaced
61	Æ Bm. '36–532	II	35·2	Nos. 8, 36, indistinct	No. 46
62	Æ Bm. '36–582	II	52·0	Nos. 6, 7, 25, 35	Indistinct
63	Æ Bm. '37–524	II	50·7	Nos. 14, 36, indistinct	No. 48
				SIRKAP	
	LONG BAR. AR				
64	AR Sk. '14–376	II–III	144·4	Double impression. Six-armed *vajra* with central dot, and an extra bar in one and an extra dot in another	
	RECTANGULAR. AR			LATER ISSUES	
65	AR Sk. '28–1	IV	42·2	No. 6, indistinct	No. 50
66	AR Sk. '28–1	IV	42·6	Nos. 6, 33, 37	Indistinct
67	AR Sk. '17–Kn.–52	II–III	50·4	Nos. 6, 7, 11, 25, indistinct	No. 50
68	AR Sk. '12–1,043	II–III	41·3	Nos. 6, 7, 29, indistinct	Indistinct
69	AR Sk. '14–2,478	Spoil earth	48·4	No. 6, indistinct	No. 60
70	AR Sk. '16–598	II–III	46·0	Nos. 6, 18, 38, indistinct	Indistinct
71	AR Sk. '16–1,158	IV	48·35	Nos. 6, 7, 11, 25, 35	No. 46

Serial no.	Description and Field Register	Stratum	Weight in grains	Obverse	Reverse
				SIRKAP (*cont.*)	
	RECTANGULAR. AR			LATER ISSUES (cf. Pls. 230–4)	
72	AR Sk. '16–1,172	II–III	46·6	Indistinct	No. 47
73	AR Sk. '21–27	I	43·9	Nos. 6, 11, 25, 36	No. 60
74	AR Sk. '22–933	II–III	48·8	Nos. 6, 35, indistinct	Indistinct
75	AR Sk. '26–4,357	II–III	47·2	Nos. 6, 25, indistinct	Indistinct
	OVAL OR ROUND. AR				
76	AR Base. Sk. '16–598*a*	II–III	43·4	Nos. 6, 7, indistinct	Indistinct
77	AR Sk. '16–598*b*	II–III	46·9	Nos. 6, 35, indistinct	Indistinct
78	AR Base. Sk. '14–146	I	35·4	Nos. 6, 10, indistinct	Defaced
79	AR Sk. '26–2,694	II–III	42·6	Nos. 6, 9, 28, 43	Indistinct
	(Cf. *B.M. Cat.* 2, Gr. VIII, Var. *c*, p. 52.)				
	ROUND AND CONCAVE. Æ				
80	Æ Sk. '26–1,608	II–III	34·9	Single impression. Six-armed *vajra* with central dot and an extra bar	
	RECTANGULAR. Æ				
81	Æ Sk. '21–27*a*	Spoil earth	35·8	Nos. 6, 7, indistinct	Defaced
82	Æ Sk. '16–641	II–III	32·0	Nos. 11, 25, indistinct	Defaced
83	Æ Sk. '28–2,282	II–III	28·4	No. 6, indistinct	Defaced
84	Æ Mixed with silver Sk. '26–1,302	Spoil earth	36·7	Nos. 6, 15, indistinct	Defaced
85	Æ Mixed with silver Sk. '26–330	Do.	49·9	Nos. 6, 25, indistinct	Indistinct
86	Æ Sk. '26–1,605	II–III	46·0	No. 6, indistinct	Defaced
87	Æ Sk. '28–2,794	VI	45·2	Nos. 6, 7, indistinct	No. 48
88	Æ Sk. '28–2,794	VI	47·7	Nos. 6, 23, indistinct	Defaced
89	Æ Sk. '21–27*b*	II–III	39·9	No. 6, indistinct	Defaced
90	Æ Sk. '16–306	II–III	34·4	Nos. 19, 25, indistinct	No. 60
91	Æ Mixed with silver Sk. '16–509	II–III	50·2	Nos. 6, 25, 35, indistinct	Indistinct
92	Æ Mixed with silver Sk. '16–616	I	31·5	Nos. 25, 44, defaced	No. 44
93	Æ Sk. '16–758	Spoil earth	29·6	Nos. 6, 7, 10, indistinct	No. 50
94	Æ Sk. '30–110	Do.	42·5	Nos. 6, 7, 25, 35	
95	Æ Sk. '28–2,794	VI	48·2	Nos. 6, 11, indistinct	Indistinct
96	Æ Sk. '17–368	Debris	40·7	Nos. 6, 10, 25	Indistinct
	OVAL OR ROUND. Æ				
97	Æ Sk. '16–335	II–III	51·2	No. 20, indistinct	Indistinct
98	Æ Sk. '13–84	I	52·0	Nos. 6, 7, 27	No. 55
99	Æ Sk. '21–27*c*	Spoil earth	47·5	Nos. 6, 7, 35	Indistinct
100	Æ Sk. '28–1,123	II–III	35·2	Defaced	Defaced
101	Æ Sk. '28–2,794	VI	48·2	Nos. 6, 11, 15, 22	No. 52
102	Æ Sk. '28–2,794	VI	46·9	Nos. 6, 12, 28, 32	Nos. 56, 57
103	Æ Sk. '28–2,794	VI	45·7	Nos. 6, 25, indistinct	No. 50, indistinct
				MOHṚĀ MORĀDU	
		Depth below surface			
104	AR Mm. '15–213	7 ft.	49·3	Nos. 12, 29, indistinct	Defaced
				PIPPALA	
105	Æ Pl. '21–75	4 ft. 6 in.	51·3	No. 21, indistinct	No. 59

twelve on or near the surface. Of these forty specimens, two (one silver and one copper) belong to the 'long-bar' and 'round and concave' classes; and both of these, curiously enough, come from the Late Śaka-Parthian city of the first century A.D. Of the remaining thirty-eight (fifteen silver and twenty-three copper), six[1] are of the same class as the majority of the larger hoard (cf. Pl. 234, nos. 24–48), twenty-three[2] are of the latest type (cf. Pl. 234, nos. 49–59), and the remaining nine are too worn to be identified.

but, with two exceptions, absent from later Buddhist sites

The only other punch-marked coins recovered at Taxila were a single much-worn silver piece from Mohṛā Morādu, and a copper piece of the latest type from Pippala. The noticeable absence of punch-marked coins from the many other Buddhist sites of the early medieval period which have been excavated at Taxila, goes to show that they disappeared from the local currency between the second and fourth centuries A.D.

A list of all the punch-marked coins other than those contained in the two Bhiṛ Mound hoards is appended (pp. 753–5).[3]

LOCAL COPPER COINAGE OF TAXILA[4]

Stratification and age of local copper coinage

Turning to the early local copper coinage of Taxila, we get substantial data from both the Bhiṛ Mound and Sirkap as to its age and the types of which it made use. Of the 179 specimens from the Bhiṛ Mound, 134 come from the second or Maurya stratum, thirty-three from the surface stratum, ten only from the third, and two from the fourth stratum. Of the ten specimens from the third stratum, seven, which were found less than 2 ft. below the Maurya foundations, were doubtless buried there during the Maurya period, and the other three specimens, as well as the two from the fourth stratum, may reasonably be presumed to have been strays. It would be unsafe, therefore, to infer that any of these local coins of Taxila were struck before the third century B.C., but from that time on until the coming of the Greeks, and perhaps for some time afterwards, they must, to judge by the numbers recovered, have been issued in abundance. Dr Allan (*B.M. Cat.* p. cxxxix) says that this coinage was seemingly a short-lived one, 'beginning late in the third century B.C. under Maurya governors and ending with the Greek conquest before the middle of the second century B.C.' Dr Allan may be right, but the latter date is not free from difficulties; for whereas the Bhiṛ Mound settlements of the Maurya and autonomous periods yielded 179 of these coins, the Sirkap cities, which did not come into existence until after the Greek conquest, yielded 502. And it is not a question of numbers only. From the Stratigraphical Chart below (pp. 760–1), it will be seen that of the twenty-five types and varieties brought to light in Sirkap eleven only were represented among the Bhiṛ Mound coins, and these eleven did not include a single specimen of such noteworthy types as the 'Tree-in-railing' and

[1] Viz. nos. 68, 90, 96 and 101–3.
[2] Ten of these are silver and thirteen copper.
[3] For further remarks on the punch-marked coins, see pp. 14–15, 103, 105–6, 110–11, 843–52, 853–5.
[4] For the local copper coinage, see also pp. 26–7, 110, 795–8, 835, 855–6.

'Lotus plant'. It is an undeniable fact, of course, that ancient Indian coins often remained in circulation for several generations after they had ceased to be minted, but it is difficult to believe that such a very large proportion of these particular coins would have been current in the first century A.D. (432 came from the two top strata of Sirkap), if their issue had been stopped two centuries earlier. On the whole, it seems more likely that these local coins continued to be struck for some time after the Greek, and possibly after the Śaka conquest also.

Types and varieties

The types and varieties presented by this local coinage have been discussed by Dr Allan in the *B.M. Cat. of Ancient Indian Coins*, and there is not much to be added to his comprehensive account of them. Interesting coins of the present collection that are not represented in the British Museum Cabinet are nos. 5, 6, 13–15, 24, 25, 26, 32, 37 and 38[1] of my 'List of Rare and Unique Coins' (ch. 39). On the other hand, the British Museum possesses a number of types that are absent from this collection, the most notable among them being Class 1 (*Negamā* series) of the inscribed coins, and Class 1, *d*, *e*, *h*, *i* and *j*, and Class 3, *b* of the uninscribed coins. As to the *negamā* and other inscribed coins, they have already been noticed in chapter 2 (pp. 26–7). Something, however, remains to be said about the uninscribed types, some of which are peculiarly distinctive. Commonest of all of these is the *chaitya* or stūpa crowned with a crescent.[2] Like the conventional hill in Assyrian art, the stūpa is represented by three or more arches arranged in pyramidal form. The crescent which rests on its summit, like the *triratna* symbol on the summit of the Sāñchī gateways, had its origin, as I have elsewhere shown,[3] in the 'horns of divinity' found on prehistoric seals of the Indus, and thus served to emphasise the sanctity of the monument. By the side of the stūpa appear various other figures. On some coins there is a pillar;[4] on others, a sacred tree-in-railing;[5] on others, a smaller mound, represented by a pyramid of balls;[6] on others, the same device, with an undulating river beneath;[7] on others, a female figure with flower in hand standing between the larger and smaller mounds;[8] on others, what appears to be the plan of a *saṅghārāma* with two rows of monastic cells and a small flame-shaped object in the middle.[9] Of the meaning of these symbols there can hardly be much room for doubt. The *chaitya* or stūpa is evidently the great Dharmarājikā Stūpa built by Aśoka and for long the most important Buddhist monument in the North-West; the stream is the Tamrā nālā which flowed at the foot of the Dharmarājikā; the pillar is one of the famous monoliths of Chunar stone which Aśoka presumably erected by the side of this stūpa as he erected others by the side of his stūpas at Sāñchī, Sārnāth, etc.; the two rows of monastic

Stūpa and crescent

Representation of Dharmarājikā

[1] Of these nos. 25 and 26 are figured in Cunningham, *Coins of Ancient India*.

[2] Cf. Stratigraphical Chart (p. 760), types 1–7, and *B.M. Cat.* Pl. XXXII, nos. 1–13.

[3] *M.I.C.* vol. I, p. 55. The crescent is sometimes replaced by the *triratna* or by the *taurine* on the arched *chaitya*. All three symbols appear to have had the same religious significance. (Cf. *B.M. Cat.* pp. 151–3, 158, 162, etc.)

[4] *B.M. Cat.* Pl. XXXII, nos. 1 and 2.

[5] *Ibid.* nos. 3 and 4.

[6] *Ibid.* nos. 5–10.

[7] *Ibid.* nos. 7–11.

[8] *Ibid.* nos. 5 and 6.

[9] *Ibid.* no. 11.

cells are those which once stood alongside the *saṅghārāma*; and the flame-shaped object between them appears to be a diminutive representation of the central stūpa; the tree-in-railing may well have been a shoot from the Bodhi Tree at Bodh-Gayā, which Aśoka caused to be planted in this important *saṅghārāma* at Taxila, just as he caused another shoot of the same tree to be planted at Anurādhapura in Ceylon;[1] or it may be that the sacred Bo tree was figured on these coins merely in order to emphasise the Buddhist character of the stūpa. The smaller mound by the side of the larger may be presumed to have been a smaller stūpa now no longer existent, which stood by the side of the Dharmarājikā just as the ancillary stūpa III, containing relics of Buddha's two chief disciples, Mahāmogalāna and Śāriputra, stood by the side of the Great Stūpa at Sāñchī. Who the standing female figure holding a flower in her right hand is meant to represent is problematical. Probably she is the same as the stone figurine no. 3 (Pl. 211, 3 *a* and 3 *b*). Allan links her with a figure on some of the *negamā* coins whom he provisionally calls Lakshmī but is tempted to regard as the city goddess of Taxila.[2] In this he may well be right, but it is to be noted that, if we are justified in identifying her with Lakshmī, we should also be justified in identifying her with Māyā, the mother of the Buddha, who is commonly portrayed in the guise of Lakshmī by sculptors of the Early Indian School.

Lady of the lotus

Cross symbol

Connected with the stūpa and crescent on certain coins which are occasionally found at Taxila is the symbol of a cross, sometimes placed directly under the stūpa, sometimes at the side of it.[3] This cross has been explained as the plan of the stūpa with ascending stairways opposite the four cardinal points, but a difficulty in the way of this explanation is that the cruciform type of stūpa did not, as far as we know, come into fashion before the first century A.D., and even if the early circular stūpa was provided with four stairways projecting outwards from the centre, it could hardly have been represented as a cross of this square type.

Elephant, horse and lion

Another characteristic type on these coins is the elephant, shown usually standing to right or left, but sometimes *en face*. The prancing horse and lion also appear, but while these may, as Allan suggests, have been of foreign origin, the elephant was an indigenous type, and we shall see presently how this type was perpetuated by Apollodotus I, Menander, Lysias, Antialcidas, Archebius, Maues, Azes and Azilises; all of whom ruled at Taxila.[4] That the elephant was a type specially identified with Taxila it would be too much to say, but it may be recalled that, according to Philostratus, there was in the first century A.D. a sacred elephant called Ajax in the temple of the Sun at Taxila which the people used to anoint

[1] *Mahāvaṃsa* XVIII–XX.

[2] *B.M. Cat.* pp. cxxvii and cxxxiii.

[3] R.U.C. nos. 11–13; *B.M. Cat.* Pl. XXXIII, nos. 10–15; Pl. XXV, nos. 3, 7 and 10.

[4] The elephant also appears on coins of the Audumbaras, Ayodhya, Erān, Kāḍa, Kauśāmbī, Mathurā, Ujjayinī and Yaudheya, but not in the distinctive way that it does at Taxila. It is also found on copper coins of Antimachus I, where it seems to be a borrowing from the well-known elephant of the Seleucid coinage, and on coins of Zoilus II, Soter. See Allan, *B.M. Cat.* pp. 123–8, 130, 133, 144, 146, 150, 261–2, 267–70; *B.M. Cat. of Greek and Scythic Coins*, pp. 53 and 164; Tarn, *op. cit.* pp. 163–4.

with myrrh and deck with garlands.[1] Tarn has suggested that it may have been an ancestor of this elephant that was figured on the city's coinage.[2]

Lotus plant of Life and Fortune

Another motif on this coinage that also calls for notice is usually described by numismatists as a 'flowering plant in railing'.[3] It is clearly the abbreviated form of the Lotus Plant of Life and Fortune which is figured so frequently, along with more elaborate forms, among the early sculptures of Sāñchī and Bharhut, sometimes appearing as an upright tree (*kalpavṛiksha*), sometimes as a sinuous creeper (*kalpalaṭā*) laden with jewels and other gifts. Among the Buddhists this age-old wishing tree came to be looked on as a symbol of their faith which, like the tree, conferred untold benefits on its votaries, and it seems highly probable that at Taxila, no less than in Hindustān and Central India, it was regarded as a distinctive Buddhist device.[4]

Buddhist character of majority of symbols

At one time it was the fashion to refer most of the symbols on the early coinage of India to a Buddhist origin. Latterly the pendulum has swung to the opposite extreme, and it is now the fashion to deny to them any Buddhist connexion at all. The truth, as so often happens, appears to lie between the two extremes. In the case of the earlier punch-marked coinage, probably few of its symbols were specifically Buddhist at the time of issue, though some of them became so later.[5] In the case of the later tribal coins, on the other hand, the majority of the symbols seem to have had a definitely Buddhist character. The explanation of this is not far to seek. Buddhism, let it be remembered, became the state religion at Taxila during the reign of Aśoka, in the middle of the third century B.C., and, although there may have been Brahmanical reactions against it from time to time, it was strong enough to triumph over them and to become, in after days, the dominant religion of the North-West—a fact which is overwhelmingly attested by the countless numbers of Buddhist monuments unearthed at Taxila and throughout Gandhāra and neighbouring regions. It is only natural, therefore, to expect that any notable emblems which the early Buddhist Church had sanctified by frequent use and identified with itself, should find a place among the admittedly sacred or quasi-sacred emblems stamped on the current local coinage with which we are dealing. What, then, are the principal Buddhist emblems known to us from monuments of the second and first centuries B.C.? First and foremost come those

[1] Philostratus, *Vit. Apoll.* II, 12, 24 (ed. Dübner).

[2] Cf. Tarn, *op. cit.* p. 164. Philostratus says that the elephant had once belonged to Alexander, but that is mere embroidery which need not discredit the rest of his story.

[3] Cf. R.U.C. nos. 11–15. *B.M. Cat.* p. cxxxv and Pl. xxxiii, nos. 10–15; Pl. xxxiv, no. 1. What is described as the 'Spear and flags' device (cf. *B.M. Cat.* pp. 226–7, 229–30) is also, in all probability, another variant of the lotus plant.

[4] Cf. Marshall and Foucher, *op. cit.* pp. 142–7. The same device appears on a copper coin of Taxila which was formerly attributed to Agathocles (*P.M. Cat.* p. 18, no. 51).

[5] This is especially true, of course, of the earlier pre-Aśokan punch-marked coins such as those in the larger Bhir Mound hoard. In this connexion it may be noted that, while the hill or mound is a common enough symbol on these early coins, the familiar *chaitya* or 'stūpa crowned by crescent' is not figured on them, but makes its appearance only on the later, post-Aśokan punch-marked and local Taxilan coins.

STRATIGRAPHICAL CHART OF LOCAL TAXILAN COINS FROM THE BHIṚ MOUND AND SIRKAP

Serial no.	Types and variations N.B. All coins are of copper	Bhiṛ Mound strata					Sirkap					References (R.U.C.='List of Rare and Unique Coins', ch. 39)
		IV c. fifth century B.C.	III c. fourth century B.C.	II Maurya	I Surface	Total for Bhiṛ Mound	VI and V Greek	IV Early Śaka	II–III Late Śaka and Parthian	I Surface	Total for Sirkap	
1	Obv. arched *chaitya* surmounted by crescent.[1] Rev. indistinct	—	—	—	—	—	3	5	34	20	62	—
2	Obv. similar with symbol resembling Brāhmī 'Go'. Rev. same as obv.	—	3	21	6	30	4	5	54	24	87	*I.M. Cat.* p. 159, no. 42
3	Obv. similar but with taurine. Rev. same as obv.	—	4	36	7	47	2	9	63	18	92	*I.M. Cat.* no. 37
4	Obv. similar to preceding. Rev. large taurine	—	—	8	3	11	1	1	15	6	23	*I.M. Cat.* no. 39
5	Obv. similar but without taurine. Rev. swastika	—	—	2	—	2	—	—	1	1	2	*I.M. Cat.* no. 38
6	Obv. similar with 'Spear and flags' in l. field and swastika below. Rev. same as obv. but 'shield' symbol only in l. field	—	—	—	—	—	—	—	1	—	1	R.U.C. no. 19
7	Obv. similar, but incuse and without symbols. Rev. blank	—	—	9	2	11	—	1	6	2	9	R.U.C. no. 6
8	Obv. swastika incuse. Rev. blank	—	1	4	2	7	—	2	5	4	11	R.U.C. no. 5
9	Obv. similar, with taurine in each arm. Rev. blank	—	—	11	1	12	—	—	11	6	17	R.U.C. no. 7
10	Obv. elephant facing, with arched *chaitya* and square cross to l., and tree-in-railing to r. Rev. horse to l. and arched *chaitya* above. (Legend: *Hirañasame*)	—	—	—	—	—	—	—	—	1	1	R.U.C. no. 31
11	Obv. elephant to r. Rev. horse galloping to l.; star above	—	—	—	—	—	—	—	1	—	1	*C.A.I.* Pl. III, no. 3

12	Obv. elephant to r. or l. Rev. lion to l., with arched *chaitya* in front	1	—	3	1	5	12	1	4	1	18	R.U.C. nos. 27 and 30
13	Obv. similar to preceding. Rev. lion to r.	—	—	—	—	—	2	—	—	1	3	R.U.C. nos. 27 and 30
14	Obv. elephant walking l., with arched *chaitya* and cross above. Rev. square cross and arched *chaitya*.	—	—	—	—	—	—	—	5	2	7	R.U.C. no. 24
15	Obv. elephant to l. or r. Rev. arched *chaitya*	—	—	1	—	1	—	—	5	1	6	R.U.C. nos. 20–23
16	Obv. elephant to r. Rev. tree-in-railing	—	—	—	—	—	—	—	1	—	1	R.U.C. no. 26
17	Obv. elephant to l. with swastika and standard triangle below. Rev. tree-in-railing, with square cross and uncertain objects to l.	—	—	—	—	—	1	—	—	—	1	R.U.C. no. 25
18	Obv. couchant bull to l. or r. with taurine above, and sometimes swastika below. Rev. blank	—	1	6	2	9	—	—	14	5	19	R.U.C. nos. 32–36
19	Obv. similar. Rev. same as obv.	—	—	—	—	—	—	—	1	—	1	R.U.C. no. 37
20	Obv. lion to l. incuse, with swastika above. Rev. similar to obv.	—	—	—	—	—	—	—	1	—	1	R.U.C. no. 38
21	Obv. lion to l. with taurine and swastika, one in front, the other above. Rev. blank	1	1	33	9	44	1	11	80	33	125	R.U.C. no. 38
22	Obv. tree-in-railing; to l., seated figure facing tree and arched *chaitya* above; to r. standing figure with hands raised, and dagger-like object and swastika above. Rev. arched *chaitya*	—	—	—	—	—	—	—	5	1	6	R.U.C. nos. 16–18
23	Obv. lotus plant in railing with arched *chaitya* on either side. Rev. square cross with arched *chaitya* above	—	—	—	—	—	—	1	1	—	2	R.U.C. no. 11
24	Obv. lotus plant in railing. Rev. square cross	—	—	—	—	—	—	—	3	—	3	R.U.C. no. 13
25	Obv. spoked wheel. Rev. swastika supported by two taurines. Kh. legend: *Paṁcanekame*	—	—	—	—	—	—	—	1	2	3	R.U.C. no. 10
		2	10	134	33	179	26	36	312	128	502	Grand total from both sites = 681

[1] Unless otherwise stated it is to be understood that all arched *chaityas* in this list are surmounted by crescents.

which symbolise the Four Great Miracles, viz. the Nativity, the Enlightenment, the First Sermon, and the Great Decease. In later times these Four Great Miracles came to be represented with increasing elaboration of detail, but in the second century B.C. the Nativity (*jāti*) was represented, in the simplest form, by a lotus plant—the familiar emblem of birth; the Enlightenment (*saṁbodhi*) by a tree within a railing;[1] the First Sermon (*Dharmacakrapravartana*) by a spoked wheel; and the Great Decease (*Parinirvāṇa*) by a stūpa.[2] Next in importance to these major emblems come the *triratna*[3] and so-called 'shield'[4] emblems, both of which we find occupying conspicuous positions on the earliest Buddhist monuments; while among subsidiary and quite insignificant devices on the same monuments are the swastika and the victory triangle.[5] As to animals, the four most closely associated with Buddhism are the lion, elephant, horse and bull, though the last-mentioned plays a less important part than the other three; and next to these comes the deer. Other animals, like the camel, boar and rhinoceros, appear only rarely.[6]

Now, if we turn to our local coins, we cannot help being struck by the fact that the emblems and animals figured on them are, with two or three exceptions,[7] precisely those which the Buddhist church had appropriated to its own use. I am not suggesting that the Buddhist church invented any of these emblems. I am quite sure that it did not. But I am equally sure that its repeated use of these particular emblems, and more especially of the lotus, bodhi-tree, wheel,[8] stūpa and *triratna* must have invested them with a peculiarly Buddhist character, which would have been recognised at once in any district where Buddhism was the prevailing religion. If the reader will turn to Pls. 231–3, he will see what a vast number of emblems were figured on the punch-marked coins from the older Bhir Mound hoard. Including their variants they number more than 650, and even if we exclude all

[1] The tree was not necessarily the *aśvattha* (*ficus religiosa* or *pipal*) tree of Gautama Buddha. It might be the *bodhi-druma* of any of the previous Buddhas. Cf. Marshall and Foucher, *The Monuments of Sāñchī*, vol. I, p. 200.

[2] On these four representations, see Marshall and Foucher, *op. cit.* pp. 183–91 and 195 ff.

[3] The *triratna* is distinguished from the *nandipada* or *taurine* by the addition of a third point midway between the two horns of the crescent. To the Buddhists, the *triratna* early came to symbolise their trinity: the Buddha, the Dharma and the Saṅgha.

[4] The 'shield' is rarely, if ever, found on punch-marked coins. On the monuments its usual form is ; on the tribal coins this becomes or or . Coomaraswamy has identified the 'shield' with the *srīvatsa*, but his view has been disputed.

[5] The commonest form of the victory standard or *jayastambha* is .

[6] For the animals on early Buddhist monuments, see Marshall and Foucher, *op. cit.* pp. 172–3.

[7] The exceptions referred to are the symbol and three symbols adopted from the punch-marked coins, viz. , and .

[8] It is noteworthy that on the coins the lotus takes the same conventional form that it commonly does on the Buddhist monuments, and that the wheel-spokes are furnished with terminals, on the outside of the felly, just as they are, for example, in the case of the *dharmacakra* on the front of the west pillar of the south gateway at Sāñchī. In that case the terminals take the form of *triratnas*; on the coins, of umbrellas—both indicative of the sanctity of the wheel. Marshall and Foucher, *op. cit.* vol. II, Pl. XVIII, *a* 1; Allan, *op. cit.* Pl. XXXI, nos. 11–16. Allan ingeniously suggests that this type of wheel may be a water-wheel, but he is evidently unaware of the *dharmacakras* represented on the Sāñchī and other monuments. Cf. also 'Beads' (ch. 37), pp. 746–7.

variants, there are fully a hundred distinct types. Why is it that out of all this array of emblems the engravers of the later local coinage selected scarcely any except those which we find repeated again and again on the earliest Buddhist monuments? The answer surely is that in the interval which elapsed between the issues of the punch-marked and local coinages, Buddhism had become the established religion at Taxila, and the local officials very naturally adopted these emblems which were already sanctified by association with it, and, foremost among them, the emblem of the great Dharmarājikā Stūpa erected by Aśoka on the bank of the Tamrā nālā.

The chart (pp. 760–1) shows the types of the local Taxilan coins found in the Bhiṛ Mound and Sirkap respectively and the successive strata in which they occurred.

COINS OF THE GREEKS[1]

Number and distribution: coins from the Bhiṛ Mound and Sirkap

Owing to the relative smallness of the area excavated in the Greek stratum in Sirkap, the coins of the Greek kings are not numerous. They total 519 in all. Of these 471 came from Sirkap, five from the Bhiṛ Mound, and forty-three from other sites to be noticed presently. The earliest are the five from the Bhiṛ Mound, which comprise two silver pieces of Alexander the Great (R.U.C. nos. 2 and 3),[2] one silver piece of Philip Aridaeus (R.U.C. no. 4), one gold stater of Diodotus (R.U.C. no. 39),[3] and a copper piece of Demetrius (R.U.C. no. 42).

The 471 coins from Sirkap comprise fifty-one types belonging to twenty-one kings. These are set forth in the chart appended below (pp. 766–7), which shows the number of each type represented, the different strata and number of groups in which they occurred, and the names of other rulers with which they were associated in the different groups. Not all of the twenty-one kings listed in the chart ruled at Taxila. The first of the Bactrian Greeks to rule there was Demetrius, and to the same royal house belonged Pantaleon, Agathocles, Apollodotus I and, in all probability, Menander and Strato I. At one time or another all of these kings appear to have included Taxila within their dominions, though they may not all have made it their capital. After Strato I came a new line of kings belonging to the house of Eucratides. Whether Eucratides himself ever crossed the Indus and occupied Taxila is questionable (pp. 30–1). His son, Heliocles, certainly ruled there, and after him Lysias, Antialcidas and Archebius, though possibly not in that sequence.

Kings of Taxila

Other Greek kings

Of the other kings represented, Epander appears to have been a sub-king in Gandhāra under Menander or Strato I, and Philoxenus and Diomedes to have followed him in the same region under Heliocles and his successors. Theophilus, Telephus and Hermaeus also had their states to the west of the Indus, the two

[1] For the Greek kings of the North-West, see also pp. 27–44, 123–4, 798–805, 830–2, 835–7, 856–63.
[2] Cf. ch. 3, pp. 105–6. [3] Cf. pp. 110–11, 854, n. 1.

last in the Paropamisadae.[1] Strato II and Zoilus II ruled in the Eastern Panjāb, where they were presumably independent of Taxila, and so probably did Dionysius and Apollodotus II. Hippostratus is generally thought to have been supplanted in the same region by Azes I.

Coins of Hermaeus: mainly later imitations

The coins of Hermaeus, which constitute more than half of the whole collection from Sirkap, call for particular notice. The thirty specimens of the type 'Bust of king and Zeus enthroned' are all of copper and comprise eleven specimens resembling the smaller silver issues illustrated in *P.M. Cat.* IX, no. 657, seventeen resembling *P.M. Cat.* no. 666 and two barbaric imitations. Twenty-eight out of these thirty may therefore be taken to have been issued by Hermaeus himself. The remaining 263 coins of the type 'Bust of king and Nike' bearing the legends ΒΑΣΙΛΕΩΣ ϹΤΗΡΟΣΣΥ ΕΡΜΑΙΟΥ and *Maharajasa rajarajasa mahatasa Heramayasa* (R.U.C. nos. 95–100) were evidently not struck by Hermaeus, but by one of the Śaka or possibly Parthian rulers who followed him in the Paropamisadae. Tarn (*op. cit.* pp. 503–5) has attributed them to Kujūla Kadphises and explained them as propaganda coins, but the style of the engraving as well as the legends and monograms point to an earlier date.

It will be observed from the chart that the 263 imitation coins of Hermaeus include specimens found in fifty-nine different groups as well as those found singly, and that of the several other rulers whose coins were found in association with them, Azes I was represented in sixteen groups, Azes II in eighteen groups, Kadphises I in eighteen and Kadaphes in thirteen. It is evident, therefore, that these imitation coins of Hermaeus, which were no doubt struck in the Paropamisadae, must have enjoyed a wide and prolonged circulation at Taxila under the late Śakas and Kushāns.

Groups and their evidence

This leads me to add a few words about these groups of coins in general, whether they be of the Greek rulers or of the Śaka, Parthian and Kushān conquerors who came after them. Altogether 675 such groups, each comprising two or more coins, were found in Sirkap. Taken individually, there are not many of these groups that furnish positive evidence of much value regarding the date of the coins comprised in them. This is because coins of every kind used to remain so long in circulation —sometimes for two centuries or more after their issue—that the groups commonly contain quite heterogeneous elements, which are obviously useless as criteria for dating. On the other hand, the cumulative evidence of these groups is sometimes significant. For instance, when we find local Taxilan coins occurring twenty-four times in groups with coins of Azes I, thirty-one times in groups with those of Azes II, and thirty-two times with those of Kadphises I, we are left in no doubt that these Taxilan coins must have continued in free circulation under Śaka and Early Kushān rule. The groups from Sirkap also have another very real value in

[1] Telephus seems to have been the immediate predecessor of Maues at Kāpiśī and must therefore have been reigning in the opening years of the first century B.C. Theophilus was a generation or more later, as shown by the use of the square *theta* on some of his coins. Whitehead regards Telephus as a king of Taxila, and the rare silver 'biga' coins of Maues as belonging to Taxila. Theophilus he places at Pushkalāvatī.

that they demonstrate the danger of assuming, as has all too often been done, that when coins are found together in one group, they are likely to be of approximately the same age. So far as single groups are concerned, it is now clear that they are chiefly valuable in furnishing a *terminus ante quem* for the coins comprised in them. In other respects their evidence is of little worth unless amply corroborated by that of other groups.

Wide and protracted circulation

To revert, however, to the coins of the Greek rulers. Being struck on a common standard, these coins circulated freely beyond the borders of the State where they were issued, and many of them remained in circulation for several generations after their authors had passed away. This is abundantly evident from the finds in the later levels of Sirkap (first century A.D.), which far outnumber those from the Greek and early Śaka levels, and incidentally confirm the statement made by the author of the *Periplus* to the effect that coins of Apollodotus and Menander were still in circulation at Barygaza (Broach) in his day (latter half of the first century A.D.). Their presence there is no proof, of course, that either of these kings actually included Barygaza in his dominions, though both may conceivably have done so.

Coins from sites other than the Bhiṛ Mound and Sirkap

Of the forty-three Greek coins found on sites other than the Bhiṛ Mound and Sirkap, two are of Apollodotus I, two of Menander, one of Apollodotus II, twenty-five of Zoilus II, and eight of Hermaeus. The two of Apollodotus I (=*P.M. Cat.* Pl. IV, no. 307) come from Jaṇḍiāl; those of Menander (=R.U.C. nos. 51–5) from the Dharmarājikā; and the one of Apollodotus II (=*P.M. Cat.* Pl. V, no. 353) from Jauliāñ. The twenty-five pieces of Zoilus II (=R.U.C. no. 107) are hemidrachms of silver which were found together in a small hoard under the foundations of Temple H at the Dharmarājikā. Their findspot suggests, but does not prove, that they were buried there about the middle of the first century B.C. (p. 248). The copper coins of Hermaeus are all later imitations of the same 'Bust of king and Nike' type as the 263 specimens from Sirkap described above. Five of them were found at the Dharmarājikā, and one each at Mahal, Kālawān, and Khāḍeṛ Mohṛā.

Recruitment of coin-engravers from Western Asia

A question of some import that presents itself in connexion with these Greek coins concerns their stylistic history and the recruitment of the artists who engraved them. The Greek coins struck in Bactria itself are remarkable for their artistry and comprise some of the most superb examples of ancient portraiture known to us. But they formed quite an exceptional group, unequalled by any coins then being produced in Greece itself or any other part of the Greek world. Of the engravers who designed them we know nothing. Possibly they belonged to one gifted family, which was wiped out when the nomads overran Bactria, but this is mere guessing. What we do know is that none of these engravers accompanied the Bactrian Greeks to their new homes in India; for the coins which the conquerors minted south of the Hindu Kush are of quite a different and inferior quality. In certain features of weight and shape, and in a few of the motifs seen upon them, these Indo-Greek coins show the influence of pre-existing Indian coinages in the North-West, but speaking broadly their art and their types are essentially Hellenistic, and they are neither better nor worse than the average run of Hellenistic coins which were being

STRATIGRAPHICAL AND GROUP CHART OF GREEK COINS FOUND IN SIRKAP

Metal	Ruler	Type	Greek and earlier. Strata VII, VI and V	Early Śaka. Stratum IV	Later Śaka and Parthian. Strata III and II	Surface. Stratum I	Total	References (R.U.C. = 'List of Rare and Unique Coins', ch. 39)	No. of groups in which they occur	Names of other rulers with which each is associated and number of groups in which they are associated. The latter is specified only when more than one
Æ	Euthydemus I	Head of Heracles and horse	—	—	3	—	3	R.U.C. nos. 40 and 41	1	Hermaeus, Maues, Azes I, Gondophares, Kadphises I
Æ	Agathocles	(a) Arched *chaitya* and tree-in-railing	2	—	1	1	4	R.U.C. nos. 43–5	1	Kadphises I
Æ	Agathocles	(b) Similar and lotus plant	—	1	2	—	3	R.U.C. nos. 46–8		
Æ	Apollodotus I	Apollo and elephant	—	—	1	—	1	R.U.C. no. 50. May be referable to Zoilus I or II	4	Local Taxilan, Azes I (2), Azes II (2), Kadaphes
AR	Menander	(a) Diademed bust of king and Pallas	—	—	2	1	3	R.U.C. no. 52	6	Local Taxilan, Lysias, Hermaeus, Gondophares, Kadphises I (2)
AR	Menander	(b) Do. with javelin and Pallas	—	—	2	—	2	R.U.C. no. 57		
Æ	Menander	(c) Similar but of copper	—	—	—	1	1	R.U.C. no. 57		
AR	Menander	(d) Helmeted bust of king and Pallas	—	—	1	—	1	R.U.C. nos. 55 and 56		
Æ	Menander	(e) Similar but of copper	—	—	—	1	1	R.U.C. nos. 55 and 56		
Æ	Menander	(f) Bust of Pallas and Nike	1	—	1	—	2	*P.M. Cat.* Pl. VI, no. 482		
Æ	Menander	(g) Bust of Pallas and Gorgon buckler	—	—	1	—	1	R.U.C. no. 53		
Æ	Menander	(h) Elephant's head and club	2	1	12	8	23	R.U.C. no. 51		
Ᵽ	Strato I	(a) Apollo to r. and tripod	—	1	—	2	3	R.U.C. no. 63		
Æ	Strato I	(b) Bust of Apollo and bow and quiver	—	—	1	—	1	R.U.C. no. 58		
Æ	Strato I	(c) Bust of Apollo and Nike	—	1	—	—	1	R.U.C. no. 61		
Æ	Strato I	(d) Bust of Heracles and Nike	2	—	2	—	4	R.U.C. no. 59		
Æ	Eucratides	(a) Bust of king and Dioscuri	—	1	1	1	3	R.U.C. no. 65	1	Local Taxilan, Hermaeus, Rājuvula
Æ	Eucratides	(b) Bust of king and *pilei* of Dioscuri	—	—	1	—	1	R.U.C. no. 66		
Æ	Heliocles	(a) Bust of king and elephant	1	1	2	1	5	R.U.C. no. 68	1	Azes II, Kadphises I
Æ	Heliocles	(b) Elephant and bull	1	—	1	—	2	R.U.C. no. 70		
Æ	Lysias	(a) Bust of Heracles and elephant (square)	—	—	2	—	2	*B.M. Cat.* Pl. VIII, no. 9	1	Menander
Æ	Lysias	(b) Similar (round)	1	—	—	—	1	R.U.C. no. 71		
Æ	Antialcidas	(a) Bust of Zeus and *pilei* of Dioscuri (square)	2	2	4	3	11	R.U.C. no. 72	1	Kadphises I
Æ	Antialcidas	(b) Similar (round)	1	—	1	1	3	R.U.C. no. 73		
Æ	Antialcidas	(c) Bust of king and elephant	1	—	—	—	1	R.U.C. no. 74		
Æ	Archebius	(a) Nike and owl	—	—	1	—	1	R.U.C. no. 75	1	Azes I, Azes II, Azes and Aśpavarma, Gondophares
Æ	Archebius	(b) Elephant and owl	1	—	1	1	3	R.U.C. nos. 79 and 80		

Æ	Archebius	(c) Bust of Zeus and *pilei* and palms (square)	—	—	2	—	2	R.U.C. nos. 77 and 78		
Æ	Archebius	(d) Similar (round)	1	—	—	—	1	R.U.C. no. 76		
Æ	Epander	Nike and bull	—	—	1	—	1	R.U.C. no. 81	1	Azes I
Æ	Philoxenus	Demeter and bull	2	4	5	2	13	R.U.C. nos. 82–5	1	Local Taxilan
Æ	Diomedes	Dioscuri and bull	—	—	1	—	1	*P.M. Cat.* Pl. IV, no. 220		
AR	Theophilus	Bust of Heracles and cornucopia	—	—	—	1	1	R.U.C. no. 86		
Pl.	Strato II	Apollo and tripod-lebes	—	—	2	—	2	R.U.C. nos. 63 and 64		
Æ	Apollodotus II	(a) Apollo and tripod-lebes (square)	—	—	6	—	6	R.U.C. no. 91	5	Maues, Vonones with Śpalahores, Azes I (2), Azes II, Kadphises I (2)
Æ	Apollodotus II	(b) Similar (round)	—	—	2	1	3	*P.M. Cat.* Pl. v, no. 322		
Æ	Apollodotus II	(c) Similar (small square)	1	—	7	4	12	*P.M. Cat.* Pl. v, no. 353		
Æ	Apollodotus II	(d) Enthroned Apollo and tripod-lebes	—	1	1	—	2	R.U.C. nos. 87–8		
Æ	Apollodotus II	(e) Bull and tripod-lebes	2	2	5	2	11	R.U.C. no. 49		
Æ	Apollodotus II	(f) Apollo standing and tripod-lebes	4	4	11	5	24	R.U.C. no. 89		
Æ	Zoilus II	(a) Elephant and tripod-lebes	—	1	1	—	2	R.U.C. no. 105. May be referable to Zoilus I or Apollodotus I	1	Azes I
Æ	Zoilus II	(b) Apollo and tripod-lebes	—	—	—	1	1	R.U.C. no. 106		
Æ	Dionysius	Apollo and royal diadem	—	—	1	—	1	R.U.C. no. 104		
Æ	Hippostratus	(a) Apollo and tripod-lebes (square)	—	1	2	1	4	*P.M. Cat.* Pl. VIII, no. 627	3	Azes I (3), Azes II
Æ	Hippostratus	(b) Similar (round)	—	2	—	—	2	R.U.C. no. 92		
Æ	Telephus	(a) Zeus enthroned and warrior	—	—	1	—	1	R.U.C. no. 93		Azes I (2)
Æ	Telephus	(b) Lotus Yaksha and god and goddess	1	—	—	—	1	R.U.C. no. 94		
Æ	Hermaeus	(a) Bust of king and Zeus enthroned	—	—	7	4	11	Cf. *P.M. Cat.* Pl. IX, no. 657	4	Euthydemus, Maues, Azes I (2), Gondophares, Kadphises I (3)
Æ	Hermaeus	Similar	—	—	13	4	17	Cf. *P.M. Cat.* Pl. IX, no. 666	4	
Æ	Hermaeus	(b) Similar but barbaric	—	—	1	1	2	R.U.C. nos. 102 and 103		
Æ	Hermaeus	(c) Bust of king and Nike	4	5	204	50	263	R.U.C. nos. 95–101. Śaka or Parthian imitations	59	Local Taxilan (7), Eucratides, Menander, Maues (2), Azes I (16), Azes II (18), Gondophares, (5), Abdagases (2), Rājuvula (2), Idharasa, Kadphises I (18), Kadaphes (13)
			30	28	316	97	471			

turned out in Western Asia in the second and first centuries B.C. That the artists responsible for them were Greeks or trained in Greek traditions, there can be no question. No Indian at that period could possibly have designed or engraved the vast majority of the coins minted in the Paropamisadae, Gandhāra and Taxila mints. To what extent Indian engravers were capable of emulating Greek workmanship can be seen in coins such as those of Dionysius, Zoilus II, Apollophanes and others which were struck in the Eastern Panjāb, where the services of skilled Greek engravers were evidently unobtainable. We must infer, then, that for a time at any rate the engravers of the coins minted at Taxila and west of the Indus were recruited from the Hellenistic countries of Western Asia. That some of them settled permanently in their new Indian home and passed on their art to their descendants or pupils is likely enough, but there is no clear evidence of it in the coins of the earlier Indo-Greek kings. The great difficulty that numismatists have experienced in their attempts to arrange these coins in chronological sequence is mainly due to the fact that they have been unable to discover in the coins any regular evolution of style or technique such as distinguishes most ancient groups of coins. This, we may be sure, would not have been the case, had the earlier Greek kings possessed any sort of established school of engraving in the North-West, but it is quite understandable, if they recruited their engravers, as occasion required, from Western Asia. Hellenistic art in the West was itself, of course, undergoing considerable changes in the second and first centuries B.C., and varied greatly in style and quality in the many different localities in which it was paramount. This lack of uniformity would naturally be reflected in the work of the engravers who found their way to India and, taken in conjunction with local factors in the North-West, sufficiently accounts for any seeming anomalies in the history of this coinage.

Mints

Another question concerns the mints. Did the Greek kings of Taxila coin exclusively at Taxila, or did they make use of subsidiary mints, such as the one at Kāpiśī, in their possession? Take Antialcidas as an example. His coins are of three types, viz.: (1) silver issues with 'Bust of king and enthroned Zeus Nikephoros', (2) copper issues with 'Bust of Zeus and *pilei* and palms of Dioscuri', and (3) ditto with 'Bust of king and elephant'. Now, the 'Enthroned Zeus Nikephoros' was the characteristic type of Kāpiśī, while the '*Pilei* and palms of the Dioscuri' and the 'Elephant' have commonly been associated with Taxila. It might therefore be concluded that the silver coins of this ruler were struck at Kāpiśī, in the neighbourhood of which the Greeks obtained the bulk of their silver, and the copper coins at Taxila. But this conclusion is not borne out by the moneyers' marks; for of the five marks found on the silver coinage (*P.M. Cat.* nos. 28, 30, 32, 34 and 35), three (nos. 30, 32 and 34) are found also on the copper coinage; and the probability, therefore, is that both the silver and the copper were struck in the same mint, that mint being, no doubt, at Taxila. We must not, however, exclude the possibility that the controller of currency had his marks stamped on all coins, wherever minted.[1]

[1] Cf. pp. 780–1 *infra*.

It is to be noted that the Greek coins recovered at Taxila, though comprising a number of rare issues, have not supplied the name of a single new king or, with one exception, any new types. From this it may be inferred that there are few, if any, of the Greek kings of India who are not already known to us, and that we cannot now expect to find many new types. Many of these coins have been discussed in chapter 2 in connexion with the history of Taxila, and some further comments on them are made in Dr Allan's note below (ch. 41) and in Dr Whitehead's commentary on my 'List of Rare and Unique Coins' (ch. 39).

No new Greek kings

COINS OF THE ŚAKAS AND PARTHIANS[1]

Whereas the Greek sovereigns in India, even if they had sub-kings in subordination to them, used only the simple title of 'king' or, at most, 'great king', the paramount sovereigns among the Śakas and Parthians invariably took the title of 'king of kings' or 'emperor', thus following the example of Mithridates II of Parthia and some of his successors, who in their turn had taken the title from the Achaemenid *Khshayathiya khshayathiyanam.*[2] The titles of 'king', 'great king', 'satrap' 'great satrap', and '*strategos*' were reserved for such lesser chiefs and functionaries as were allowed to strike their own coins. Several emperors, viz. Maues, Śpalirises, Azes I and Gondophares, had occupied the position of 'king' or 'great king' before reaching that of 'king of kings', and two of them—Azilises and Azes II—had been made joint emperors during the lifetime of their fathers, in accordance with a familiar precedent set by the Greeks.[3] These distinctions are of help in determining the mutual relations of these Śaka and Parthian rulers, and with the new light afforded by the Taxila discoveries we can now fix their dates and order of succession with a much nearer approach to accuracy than is possible in the case of the Greek rulers.

Titles of Śaka and Parthian rulers

Several factors have contributed in the past to cause confusion and misunderstanding in regard to these rulers. One of these has been the refusal of some numismatists to admit the existence of two kings of the name of Azes. A second has been the mistaken identification of the son and successor of Śpalirises, the Arachosian king, with Azes II instead of Azes I. A third has been the very natural mistake of taking the words 'brother of the king', which are found in certain of the coin legends of these rulers, to imply actual blood relationship, whereas in reality they were nothing more than an honorific title bestowed by the Parthian overlords on their Śaka or Parthian vassals[4] (pp. 49, 61, 775–6). Now that these misunder-

Order of succession: removal of misunderstandings

[1] For the Śaka and Parthian rulers, see also pp. 44–66, 84–5, 130–2, 210–12, 805–17, 832–4, 837–[illegible]

[2] On the history of this title in Persia, Parthia and Armenia, see Wroth, *B.M. Cat. of Parthian Coins*, p. xxv, n. 1.

[3] On this, see Tarn, *op. cit.* p. 348.

[4] This title, which made the recipient an honorary member of the imperial family, was conferred by Vonones on the Śaka chiefs Śpalahores and Śpalirises, the latter of whom succeeded him as emperor, and later by Gondophares on Manigula, the father of Zeionises, and on the father of Abdagases. The title was apparently conferred only by the Parthian, not by the Śaka, emperors. It was a convenient means of strengthening the ties between the new Parthian emperors and their powerful vassal chiefs, whether Śaka or Parthian, without intermarriage.

ŚAKA AND PARTHIAN RULERS

Approximate date of Emperors	Emperors	Śaka satraps of Chukhsa	Rulers in Western Panjāb or North-west Frontier	Rulers of Eastern Panjāb	Satraps of Mathurā	Śaka rulers of Arachosia	Rulers in Sind or neighbourhood	Rulers in Sistān
87 B.C.	Maues (Śaka)	Liaka Kusūlaka (77 B.C.)	—	—	[Śivaghosha	Śpalahores	—	—
54 B.C.	Vonones (Parthian)	—	—	—	Śivadatta	Śpalagadames	—	—
40 B.C.	Śpalirises (Śaka)	Pātika (Great Satrap)	—	—	Hagāmasha Hagāna]	Śpalirises Azes I	—	—
38 B.C.	Azes I (Śaka)	[Arta] Kharahostes	←——Rājuvula (Great Satrap)——→			—	—	—
10 B.C.	Azilises (Śaka)	—	Iṁdravasa (?Iṁdravarma)	Bhadrayaśa	Śoḍāsa (Great Satrap)	—	—	—
A.D. 5	Azes II (Śaka)	[Maṇigula]	Iśpara	—	—	—	—	—
A.D. 19	Gondophares (Parthian)	Jihoṇika (Zeionises)	—	—	—	—	—	Orthagnes Sanabares
A.D. 50	Pacores (Parthian)	—	Abdagases	—	—	—	Sasan Sapedanes Satavastra	—
		Sapaleizes? (Kushān temp.)						

standings have been removed, there can be little room for doubt as to the general correctness of the order of succession shown in the Table opposite, though some slight modifications will doubtless prove necessary in the more or less conjectural dates given in the first column. As to these dates, some words of explanation are necessary. In the case of seven out of eight emperors the dates given are the dates when they assumed the imperial title. As already stated, several were kings or local rulers before they became emperors, and the official date of their accession, as reckoned by themselves, may have been some years earlier than that shown in the Table. Maues, for example, probably became 'king' about 90 B.C., but could hardly have assumed the higher title until some time after the death of Mithridates II in 88 B.C. Azes I was probably joint 'great king' with Śpalirises as early as 45 B.C., but did not become emperor until after the death of the latter, who in the meantime had also been a 'king of kings'. In the case of Gondophares, however, we know from the Takht-i-Bāhī inscription that his accession to the throne was officially reckoned from *c.* A.D. 19, but we do not know whether this was the date of his becoming sub-king under Orthagnes or emperor.[1] Accordingly I have kept this official date of A.D. 19 in the Table.

Dates of accession

Among the earliest coins struck by Maues were those bearing the emblems 'horse' and 'bow-in-case' (R.U.C. nos. 123–4). These two emblems had been used by the Parthian sovereigns Mithridates I and II, and it was perhaps as a token of his fealty at that time to the latter that Maues adopted them. While still styling himself 'king', he also copied the 'Elephant head and caduceus' type of Demetrius I, thus advertising his claim to have emulated the victories of his Greek predecessor. Still later, when he had become emperor, he issued, as Menander had done before him, a whole gallery of types, and his example was afterwards followed by his successors.

Coins of Maues

Some of these types had already acquired a local character and were symbolic of the various areas brought under imperial sway. Such were the 'Zeus with thunderbolt' and the 'Heracles' of Arachosia; the 'Enthroned Zeus Nikephoros' of the Paropamisadae; the humped bull of Gandhāra; the elephant and the lion of Taxila; the Athene Alkis of the Eastern Panjāb. Other types were adopted for different reasons. The 'Zeus with sceptre', for example, which is one of the most striking types of Maues, Azes I, and Azilises,[2] was probably struck to commemorate their investiture as emperor; and the 'Poseidon and River-god' of Maues and Azes to commemorate naval victories on one or other of the Panjāb rivers.

How very numerous these coin-types were may be judged from the fact that among the 107 coins of Maues found in Sirkap there were no less than fifteen

Great variety of Śaka coin-types

[1] See ch. 11, pp. 58–9.

[2] Observe the object which Zeus is holding out in his right hand (*B.M. Cat.* Pl. XX, no. 4). It is evidently the same object as the deity is holding on Huvishka's coins (*ibid.* Pl. XXVII, nos. 17 and 23). I take it to be a torque, which was a symbol of high rank among Scythic and Iranian peoples generally, and a characteristic ornament of the kings of Parthia. Cf. 'Jewellery', ch. 30, Class VIII, pp. 635–6, for gold torques found in Sirkap: and for torques carried by a tribute-bearer as a national emblem of the Śaka, see Herzfeld, *Iran in the Ancient East*, Pl. LXXIX *a*. Cf. also Whitehead in *N.C.* (1940).

different types; among the 1,291 of Azes I there were eighteen types; and, most remarkable of all, among eleven of Azilises there were nine types. Out of all these coins only three, viz. one of Maues of the 'Zeus and Nike' type, and two of Azes I of the 'Mounted king and Poseidon' type, were of silver. All the rest were of copper.

Common types of Maues

The commonest of Maues' types was his 'Elephant head and caduceus'. This is not surprising, since he seems to have struck no more than two types before becoming emperor,[1] and one of these (the 'Horse and bow-in-case') was soon discontinued. The other type, therefore, must have been minted in very much larger numbers than the twenty or more types which were issued after he became emperor. It is not unlikely, too, that Maues, who doubtless aspired to be regarded as a second Demetrius, may have had a predilection for this particular coin, and continued even as emperor to issue it with the simple and dignified title of *basileus*, which Demetrius had used. Other fairly frequent types are the 'Poseidon and Vine Goddess' and 'Apollo and tripod-lebes'. The former may have been circulated in larger numbers than usual because it commemorated an important naval victory, and the second because it perpetuated a familiar type of Apollodotus I, which must have been still common in the bazaars of Taxila.

Common types of Azes I and II

Coins of both Azes I and Azes II were very prolific in Sirkap. Of the 1,291 of the former, by far the commonest type is the 'King seated and Hermes' with 862 specimens. Then comes the 'Mounted king and Zeus Nikephoros' with 189, the 'Elephant and bull' with 58, the 'Demeter enthroned and Hermes' with 49, and the 'Bull and lion' with 46. Of the 1,548 of Azes II, 1,284 are of the 'Mounted king and Zeus Nikephoros' type, 160 of the 'Mounted king and Pallas' type, and 87 of the 'Lion and Demeter' type. The other types are relatively scarce.

Stylistic and other differences

My excavations in Sirkap have made it clear beyond question that there were two kings of the name of Azes, one ruling at Taxila in the first century B.C.; the other, presumably his grandson, in the first century A.D. (ch. IV, p. 131). For the most part the coins of these two emperors can easily be distinguished by their style, those of Azes II being strikingly degenerate compared with his predecessor's. In some cases, however, the distinction between them is not so clear-cut; for among the vast numbers of coins of Azes I which were still in circulation in the first century A.D. there are not a few that are of very poor execution compared with the generality of his coins. This may simply be due to unequal artistry and workmanship in the mints of Azes I, but it creates a suspicion that some of these specimens may be the work of forgers, who could presumably copy the older but still current coins with impunity. The discovery of a set of forger's moulds in a first-century house in Sirkap (pp. 177–8) naturally lends colour to this suspicion, and so, too, does the fact that many copper coins of this period show traces of having once been plated with a silver amalgam. A coin, for example, like R.U.C.

[1] In addition to the two types referred to with the simple title of 'king', there is a small square copper coin bearing the same title, with the type 'Apollo and tripod-lebes', but in this case the title was possibly abbreviated owing to the smallness of the coin.

no. 149 would, if silvered over, easily have passed for *P.M. Cat.* Pl. XI, no. 40; or R.U.C. no. 167 for *B.M. Cat.* Pl. XX, no. 11. In an age when the currency was rapidly depreciating and billon being used more and more in place of silver, the processes of the forger must have been very much facilitated.

The depreciation referred to, which is very noticeable from the reign of Azes II onwards, could hardly have been due to scarcity of silver, since Śakas and Parthians alike had command of the rich silver mines in the Paropamisadae and Arachosia, and the abundance of silver vessels unearthed in Sirkap proves that there was plenty of the precious metal available.[1] What, then, was the reason for the substitution of lead and billon or potin coinages in place of silver? The obvious explanation, I suggest, is that the eastward extension of the Śaka empire under Azes I had brought it into increasingly close contact with the great Andhra empire of the South, where, owing to the shortage of silver, lead and potin[2] had been used as currency from the second century B.C. To promote trade with these new neighbours and avoid loss to themselves, it was a very natural step for the Śakas to substitute lead and potin for the much more valuable silver in their coinage and thus facilitate an interchange of currencies between the two empires. Depreciation under Azes II

In the chapter on 'Silverware' (pp. 609–10) we have seen that in the middle of the first century A.D. the current coin containing *c.* 148 grains of (base) silver went by the name of 'stater', and the one containing about 37 grains, which the Greeks would have called a 'hemidrachm', by the name of 'drachm', four of these drachms being equivalent to one stater. We have also seen that the current price of unworked silver was about 300 grains to the stater, viz. double the actual amount of metal contained in the stater, which, even if it had been of pure silver, would have yielded a very wide margin of profit to the treasury. That the debasement of the currency may have been advantageous at the moment need not be questioned, but it was an expedient that was bound to prove disastrous in the long run. A generation later the Kushāns, as we shall see, had the wisdom to re-establish the currency by putting it on a gold basis and abolishing altogether this debased silver coinage.

The subordinate rulers, whose names appear on coins, fall into four categories. In the first of these are the satraps or great satraps. Satrapies were established by the Śakas on the old Persian model for the primary purpose of protecting the frontiers. Among the oldest of them was that of Chukhsa, which was designed to safeguard the northern frontiers and the Indus crossings, and seems to have embraced Gandhāra to the west of the Indus and a large part of the present Hazāra, Attock and Mianwāli Districts to the east of it. The first of the Chukhsa satraps, appointed by Maues, was Liaka Kusūlaka, who, according to Konow's reading of the Pātika Satraps of Chukhsa

[1] If Gondophares annexed the Paropamisadae, as he may have done, some years before he conquered the Panjāb, and thus deprived Azes II of the main sources of his silver supply, that might of course have necessitated the change over to billon; but this explanation is discounted by the facts. (*a*) that Rājuvula had issued billon and lead currencies a generation earlier; (*b*) that Gondophares continued the use of billon although he had all the silver mines of Arachosia and the Paropamisadae in his possession.

[2] Cf. Rapson in *B.M. Cat. of Andhra Coins*, p. clxxxii.

copperplate inscription, belonged to the same Kshaharāta clan as the Western Kshatrapas, Bhūmaka and Nahapāna. His coins, none of which, be it noted, have been found at Taxila, copy the type of Eucratides, 'Bust of king and *pilei* of the Dioscuri'.[1] Liaka's son, Pātika, who was afterwards raised to the dignity of 'great satrap', is known to us only from inscriptions. No coins have survived which bear his name. Other satraps of Chukhsa, who presumably belonged to the same powerful family, were Arṭa and his son Kharahostes (father-in-law (?) of Rājuvula), and Maṇigula and his son Jihoṇika (Zeionises). No coins of Arṭa or Maṇigula are known, but both names appear on their sons' coins, and there is a coin of a 'Son of Kharahostes', with the name missing,[2] who may have been Hayuara, brother-in-law of Rājuvula, according to Konow's rendering of the Mathurā Lion Capital inscription.[3]

Kharahostes used the coin type 'Mounted king and lion' and Zeionises most commonly the type 'Bull and lion', more rarely 'Bull and elephant', both of which indicate a liaison between the old Taxila kingdom and Gandhāra, the lion and elephant being characteristic of the former, the bull of the latter. But there is another type that Zeionises uses, viz. 'Mounted king and king being crowned by one or two deities'.[4] This 'coronation' motif, which was evidently imitated from contemporary coins of Parthia,[5] may have been adopted to commemorate the fact that Zeionises, whose father Maṇigula had been honoured with the Parthian title of 'King's brother',[6] was confirmed by Gondophares as satrap of Chukhsa and possibly invested with additional powers, including the privilege of minting his own coins; but, whatever it commemorated, there can be little doubt that it was intended as a compliment to his Parthian overlord. As to the question of minting, it is to be noted that we possess no coins of Pātika, Arṭa or Maṇigula, and it seems probable, therefore, that the privilege may have been granted as a personal distinction to some only of the satraps. Similarly, there is nothing to show that the Śaka title of 'great satrap' was conferred on any of the Chukhsa chiefs except Pātika, or the Parthian title of 'king's brother' on any except Maṇigula.

What happened to this satrapy after the collapse of Parthian rule we do not know. It is possible, however, that a later chief in the Chukhsa satrapy was Sapaleizes, who used the coin-type 'Helmeted bust of king and lion' with the Greek legend NANAIA beside the lion.[7] The helmeted bust closely resembles that on the coins of Liaka Kusūlaka, while the lion on the reverse is, as already noted, characteristic of the coinages of Kharahostes and Zeionises. The word NANAIA is seemingly meant to identify the local lion of Chukhsa with the lion of Nanaia or Nana, the equivalent of the Babylonian Anahita, who is figured so often on the

[1] Cf. *C.H.I.* vol. I, Pl. VIII, nos. 41 and 42.
[2] *P.M. Cat.* p. 159, no. 93.
[3] *C.I.I.* vol. II, 47–9.
[4] R.U.C. no. 200 and *B.M. Cat.* Pl. XXXII, no. 11.
[5] E.g. Coins of Artabanus III (A.D. 10–40). *B.M. Cat. of Parthian Coins*, Pl. XXV, etc.
[6] *Vide* inscription on the silver *askos* vase from Sirkap (pp. 156, 611).
[7] Cf. *B.M. Cat. of Greek and Scythic Coins*, Pl. XXIV, nos. 14 and 15.

coins of the Kushān kings. It is possibly to the early Kushān period that Sapaleizes is to be referred.[1]

Satraps of the Eastern Panjāb

Following the conquest of the Eastern Panjāb by Azes I, a second satrapy was established there under Rājuvula, who seems to have been a member of the house of Liaka, or at any rate very closely connected with it.[2] His coins have already been discussed in chapter 2 (pp. 54–5). Here it is enough to say that in the Eastern Panjāb he adopted the local type of Athene Alkis used by Strato and his successors; and when, later on, his satrapy was enlarged to include Mathurā and Taxila, he similarly adopted the local type of 'Lakshmī facing between symbols' at Mathurā and the imperial types of 'Lion', 'Heracles', and 'Zeus Nikephoros standing' at Taxila,[3] the lion having a special significance owing to its association with his own family. He calls himself satrap and great satrap in the Kharoshṭhī legends, but *basileus* in the corrupt Greek legends. With a satrapy extending from Taxila to Mathurā, Rājuvula must have been the most powerful of all the Śaka satraps. After his death this satrapy seems to have been split up, his son Sóḍāsa, who like his father bore the title of Great Satrap, inheriting only the Mathurā area, while a successor in the Eastern Panjāb was Bhadrayaśa, who uses the Athene Alkis type on his billon coins with the title *basileus sōter* in corrupt Greek, as Rājuvula had done. To a somewhat later date belong the subordinate rulers Iṁdravasa and Iśpara, whose coins show the imperial type 'Mounted king and Pallas'. The former may be identical with Iṁdravarma,[4] the father of Aśpavarma, the *strategos*; the latter with Iśparaka (Īśvaraka), the donor of a copper ladle found on the Mahal site[5] (pp. 215 and 594, no. 307).

Titular 'brothers' and 'nephews' of the emperor

In the second class of subordinate rulers are the chiefs who were honoured by the ruling emperor with the title of 'brother' and whose sons bore the title of 'nephew of the emperor'. One such chief who enjoyed this title has already been noticed—Maṇigula, father of Zeionises, satrap of Chukhsa. Others were the chiefs of Arachosia—Śpalahores, his son Śpalagadames and Śpalirises, the first and last of whom were titular 'brothers' of the mahārāja (Vonones), and Abdagases, who was 'nephew' of Gondophares. While the title of 'brother' seems to have been conferred only by the Parthian emperors, the recipients might be of Parthian or Śaka nationality. Abdagases, whose name is a Parthian one, may, of course, have been a blood relation of Gondophares, but the Arachosian chiefs, who were Śakas, could not have been blood-brothers of Vonones. In later life Abdagases followed his overlord Gondophares as king of Sīstān, but on his earlier

[1] It should be noted, however, that Sapaleizes is credited with having both countermarked and imitated drachms of Phraates IV of Parthia (*c.* 37 B.C.–2 B.C.). Cf. Wroth, in *B.M. Cat. of Parthian Coins*, p. 114, n. 1.

[2] Konow (*C.I.I.* II, pp. 47–9) makes him the son-in-law of Kharahostes.

[3] To these should be added the 'Heracles and horse' used by Azes I. Cf. *P.M. Cat.* Pl. XVI, no. 138.

[4] For the terminations -varma and -datta by which some of the Śaka and Parthian names were Hinduised, cf. Rapson in *C.H.I.* I, p. 577. For the reading Iṁdrarasa, which I formerly read as Idharasa, see *C.I.I.* II, p. xliv, n. 1.

[5] *C.I.I.* II, pp. 87–8.

coins, which seem to have been struck at Taxila, he is designated as viceroy and nephew of Gondophares, and his domain at that time was probably in the Taxila area.

Kings and great kings

Thirdly, there are the local chiefs, who took the title of king or great king, that is, mahārāja = Gr. *basileus* or *basileus megas*. In Arachosia, the title of *basileus* was first adopted by Śpalirises, after the assertion of his independence. He then called himself 'great king' and conferred the same title on his son, Azes I. Later, he was to become 'great king of kings', but there is no evidence to show that he made his son co-emperor, as Tarn has suggested. The chief coin types associated at this period with Arachosia were 'Youthful Heracles with club' and 'Zeus standing to front leaning on long sceptre in left and with thunderbolt in right hand'. The former had been used by the Euthydemid princes, Demetrius, Euthydemus II and Agathocles, as well as by Lysias; the latter by Heliocles, probably in the same area. These types and the peculiarly distinctive character of the engraving executed in the Arachosian mint have already been commented on in chapter 2 (pp. 49, 50) and it is unnecessary to add to what has there been said.

In the Eastern Panjāb Rājuvula used the title *basileus* as the equivalent of satrap, and Bhadrayaśa, his successor, also called himself *basileus*; but the Greek coin-legends in that part of the world were then becoming so corrupt that they may not have had much significance. We have also seen that in their later days Abdagases and Sasan, the nephew (perhaps titular) of the *strategos* Aśpavarma, were both elevated to the position of kings. Two other kings of this period were Sapedanes (if his name has been correctly read) and Satavastra, whose coins (nos. 211–21) have been discussed in chapter 2, p. 60 and chapter 5, p. 161. Their coins form a homogeneous group with certain coins of Sasan (nos. 201–8) and Kadphises (nos. 258–60), which were found with them in a single hoard in Sirkap (p. 161), and which, like them, were previously unknown. All the coins in this small group are of good silver (in contrast with the debased metal in use in the eastern parts of the empire); all are of approximately the same size; and all bear the same type 'Bust of king left and Nike'—a type which was particularly associated with the Sīstān area, where it was used by Gondophares, Orthagnes, Pacores and Sanabares. The coins of Sapedanes, Satavastra and Sasan exhibit the 'Gondophares' symbol, which was introduced by that emperor and, according to Rapson, copied by his successor Pacores, but the fact that Sapedanes used the ambitious title of 'king of kings' (*rājarāja*) suggests that any suzerainty he may have acknowledged was more nominal than real. There can be little doubt that all these coins emanated from one and the same area, and in the opinion of the writer that area was in the west of the Indo-Parthian empire, i.e. in Sind or Western India.[1] Elsewhere I have suggested

[1] Dr Whitehead attributes these coins to the North-West Frontier region. He points out that their characteristic mark, apart from the Gondophares symbol, is the Kharoshṭhī 'bhu', which also figures on the coins of Vijayamitra's son, and since the evidence of the Bajaur relic casket places the latter in the Bajaur (Goruaia) region, he infers that these coins also came from the same region. It should be noted, however, that in type, design and technique these coins are totally different from those of Vijayamitra's son. The latter may well have been struck in the Taxila mint; the former could not have been struck either at Taxila, or Pushkalāvatī; still less could they have come from the Kāpiśī

that Sapedanes may possibly be identical with the Sandanes who is mentioned in the *Periplus* and that his kingdom may have included Surāshṭra and Barygaza. As to date, it is noteworthy that the coins of Sasan and Sapedanes are more worn than those of Satavastra and Kadphises. Sasan's coins may have been struck in the reign of Pacores (*c.* A.D. 46–60), but it is to be noted that the head figured on them is probably that of Sasan himself, not of Pacores, as suggested by Rapson. Satavastra may have belonged to a decade or two later. It is particularly interesting to find the Kushān king striking these distinctive coins of silver for circulation in Sind or thereabouts; for it shows that he was in effective occupation of that part of India; and it suggests that he would probably have maintained the silver coinage of Taxila and the eastern empire, if it had not already been so deplorably debased by contacts with the Andhra empire. We shall see later that these Kushān coins were probably struck during the lifetime of Kujūla Kadphises, that is, before A.D. 78.

Strategoi

To the three categories above we ought perhaps to add a fourth, viz. the *strategoi* or commanders-in-chief of the imperial forces, who presumably were directly responsible to the emperor for the safety of the realm and therefore in a position of authority over the satraps and other local chiefs. The only *strategos*, however, whose name has come down to us is Aśpavarma, son of Indravarma. Aśpavarma served as *strategos* under Azes II and subsequently under the Parthian Gondophares, and was followed by his nephew Sasan. The latter, however, does not bear the title of '*strategos*', and it seems probable, therefore, that he held some other office under Gondophares and his successor Pacores. It would be interesting to know if Sasan was related by blood to Aśpavarma, or was merely his adopted nephew in the same way that Śpalagadames, for example, was son of the adopted brother of Vonones, and Jihoṇika of Gondophares.

I have differentiated between the above classes of subordinate chiefs merely for the sake of clarity. They are not of course, mutually exclusive. A titular 'brother' or 'nephew' of the emperor might be a satrap or king or *strategos*; or he might become first *strategos*, then king, and finally emperor. But it is well to bear in mind (*a*) that under the Śakas the normal designation of a subordinate ruler was satrap, whereas under the Parthians it was frequently *basileus* or *mahārāja*, notwithstanding that a Śaka chief like Rājuvula might use the term *basileus*, or even *basileus basileōn*, loosely and in corrupt Greek as the equivalent of 'satrap' or

mint, since that must already have been in the hands of Kujūla Kadphises before Satavastra's coins were struck. Even assuming that the symbol 'bhu' was in some way associated with the ruling family in Goruaia, it proves nothing more as to the provenance of these coins than the Gondophares symbol, which is also characteristic, does. Sasan may well have adopted the 'bhu' symbol in memory of his titular uncle Aśpavarma; and his successors Sapedanes and Satavastra may have followed his precedent; but Sasan's kingdom could hardly have been restricted to the neighbourhood of Goruaia. Even during the lifetime of Pacores he was probably the *de facto* ruler of the western parts of the empire and, if the portrait on his coins is his own, seems to have had no scruples about imitating the imperial types and assuming the imperial crown, though he left it to his successor Sapedanes to style himself 'king of kings'. As the Kushāns advanced into Gandhāra and the Panjāb, the Parthian rulers were driven more and more to the west, and by the time the *Periplus* was written (*c.* A.D. 70–80) had probably lost the Panjāb altogether.

'great satrap'; (*b*) that the title of 'brother' or 'nephew' of the emperor was, so far as we know, a Parthian, not a Śaka, distinction; and (*c*) that only one chief, Aśpavarma, is actually named as *strategos*, and that he served first under a Śaka and then under a Parthian emperor.

Coin engraving under the Śakas and Parthians

We have seen that the early Greek kings in India had to recruit their coin engravers from Western Asia. Later on some of these engravers, who had settled down in their new homes, established a local school, if I may use that term, in the North-West, of which the Śakas and Parthians continued to avail themselves after the eclipse of Greek power. The history of this school is one of creeping Indianisation and decadence. In the first century B.C. the best engravers were to be found in the mints of Taxila and Kāpiśī. The old Greek mint at Pushkalāvatī does not seem to have been used by the Śakas for their imperial coinage, though it may possibly have been used by the satraps of Chukhsa. This I think we must infer from the moneyers' marks. Thus, if we divide up the coins of Maues according to these marks, we find that they fall into three groups. In the first group are the types designated α, γ, δ, λ, ν, ο, π and σ and illustrated in Pl. X, nos. 1, 3, 5, 10 27, 31, 32 and 35 of the *Panjab Mus. Catalogue*; to which must be added also the following types: 'Heracles and lion' (*B.M. Cat.* Pl. XVI, no. 5); 'Poseidon with aplustre and Vine goddess' (*ibid.* Pl. XVII, no. 2); 'Elephant and bull' (*ibid.* Pl. XVII, no. 6); 'Standing figure with ankus and aegis' (Cunningham, Pl. II, no. 13). This group of types is distinguished by the moneyers' marks, or , and . The second group comprises the types, *P.M. Cat.* ε, ȝ, η and ι (=Pl. X, nos. 13, 15, 16 and 20), to which must be added the 'King in biga and Zeus enthroned' type of Cunningham, Pl. II, nos. 1-3. This group is distinguished by the moneyers' marks and . The third group comprises the types 'Male deity with club and goddess' (*P.M. Cat.* Pl. X, no. 25 and *B.M. Cat.* Pl. XVII, no. 3); 'Mounted king and goddess with lamp' (*B.M. Cat.* Pl. XVI, no. 3 = Cunningham, Pl. II, no. 7); and 'Mounted king and Pallas' (*B.M. Cat.* Pl. XVI, no. 6 = Cunningham, Pl. II, no. 10). The moneyers' marks used with these types of the third group are or with ψς (*dami*).

Moneyers' marks on coins of Maues

Three mints in use

At which mints were these three different groups coined? So far as two of the groups are concerned, the answer seems clear. The marks of the second group are identical with those found on the money of Telephus, the Greek king who preceded Maues, and, if Telephus has been rightly placed at Kāpiśī, we must conclude that it was at Kāpiśī also that the coins of this group were minted.[1] It follows, therefore, as we might on other grounds expect, that the first and major group comprising the bulk of Maues' coins was minted at Taxila, which was the capital of the new empire, and would naturally possess its chief mint.[2] There remains the third and

[1] See, however, p. 764, n. 1 *supra*. Whitehead associates the monograms and with Taxila.

[2] A comparison of the *P.M. Cat.* Pl. X, nos. 1 and 16 suggests that the same engraver was responsible for both coins. If so, he may have been transferred from the Taxila to the Kāpiśī mint, or vice versa. Observe that the reverse of no. 16 is identical with *B.M. Cat.* Pl. XVII, no. 4, but the obverse is quite different. Is there by chance an error?

smallest group, which comprises only three types. The coins in this group are characterised by their rough, crude workmanship and clumsily written Kharoshṭhī legends, which point to some district of origin where the Kharoshṭhī script was less familiar than in the Northern Panjāb and Gandhāra. That district was, I think, in all probability Arachosia. We shall see that other coins from the Arachosian mint exhibit these same defects; and, moreover, the types associated with group 3, viz. 'Pallas Athene', 'God with club' and 'Lamp goddess', also point in the same direction, for if we substitute 'Heracles with club' for 'God with club' (who may well be the elder Krishna, with whom Heracles was commonly identified), we shall find that it was precisely these three types that are characteristic of the Arachosian mint.

If then we can rely on moneyers' marks as guides, we must conclude that Maues coined only in three mints: Taxila, Kāpiśī, and one other, which was probably at Demetrias in Arachosia. Naturally his principal mint would be at Taxila, where the imperial treasury would also be located, but the fact that the main supplies of silver and copper were obtained from the Paropamisadae and Arachosia[1] may have been a good reason for maintaining subsidiary mints in those districts.

Coinage of Vonones and Arachosian chiefs

The Parthian Vonones, who followed Maues as 'king of kings', and his vassal chiefs Śpalahores, Śpalagadames and Śpalirises seem to have used only the Arachosian mint. Their moneyers' marks are few and simple (*P.M. Cat.* nos. 10 and 41–4) and with one exception (₨) peculiar to Arachosia. Their types also form a small and distinctive group, viz. 'Mounted king and Zeus', 'Youthful Heracles with club', 'Pallas Athene', and 'Bow and arrow'. The Zeus type, which is found exclusively on the silver issues is copied from coins of Heliocles, the god standing front with sceptre in left hand and thunderbolt in lowered right hand, but the figure is very inferior to that even on the Indian issues of Heliocles, the head being pressed down into the shoulders and inclined to one side. Indeed, so strained and peculiar is the attitude of the god on all these silver coins that there can hardly be a doubt that they are all the work of a single engraver.[2] As they comprise issues of Vonones with Śpalahores and Śpalagadames, of Śpalirises and of Azes I,[3] as king of kings, the period they cover must be between about 53 and 30 B.C. The square copper coins of Vonones with Śpalahores and Śpalagadames, with types 'standing Heracles and Pallas', are far superior in style and execution to the copper coins of Śpalahores and Śpalagadames with the type 'seated Heracles'[4]

[1] There were silver mines near the head of the Panjshir valley in the Hindu Kush, and silver was also obtainable from lead mines at Fāranjal in the Ghorband valley and other localities in Southern Afghānistān. Ancient copper workings exist near the Safed Kūh between Kābul and Kurram, at Tezin east of Kābul and at various other places. Cf. Sir Edwin Pascoe in *M.I.C.* II, pp. 675–6. The rulers of Arachosia may have got their supplies from the Shāh Maqsud (31° 53′; 65° 20′), where there are rich veins of ore said to have been worked by Nādir Shāh and the Sirdars of Kandahār (*Calcutta Journ. Nat. Hist.* VI, p. 597). Whether they had access to the silver deposits formerly worked near Herāt, is doubtful.

[2] Cf. ch. 2, p. 49.

[3] Cf. *B.M. Cat.* Pl. XXI, nos. 7, 8, 10; Pl. XXII, nos. 1 and 3; Pl. XVII, nos. 9 and 10.

[4] *B.M. Cat.* Pl. XXI, no. 12.

and those of Śpalirises as 'king of kings' with the type 'King standing and Zeus radiate'.[1] These later coins, which are distinguished by their rough workmanship, by the clumsiness of the Kharoshṭhī lettering and their partiality for the beaded square, may be taken as typical of the Arachosian coinage. We have already noticed the same kind of crude workmanship in the third group of Maues' coins and we encounter it again in some of the copper pieces of Azes I and Azilises, e.g. the 'Heracles and horse' type (*B.M. Cat.* Pl. XIX, no. 11 and Pl. XXI, no. 5) and the 'Mounted king and Heracles' types (*P.M. Cat.* Pl. XII, nos. 255 and 256 and Pl. XIV, no. 353), the latter of which are undoubtedly products of the Arachosian mint.

Other coins minted in Arachosia

To this same Arachosian group we must, I think, also attribute a series of coins bearing the type 'Mounted king and lamp goddess'. I have already drawn attention to the earliest example of this type among the copper issues of Maues.[2] In that example the goddess is wearing a mural crown, with her left hand resting on a shield in the manner of Athene. On later silver coins of Azes I and Azilises[3] she carries the same flaming lamp, but has a helmet instead of a shield, and carries a palm branch in her left hand. Seemingly she is a local deity, whose type was in process of being evolved by equating her partly with Athene, partly with Nike, her one invariable attribute being the flaming lamp. My chief reason for connecting this type with Arachosia is that, with one exception, the drawing of the figure and the Kharoshṭhī lettering betray the same clumsy handiwork that we encountered on other coins from that area. It may be significant, too, that this was the only type used on the joint coins of Azes I and his son Azilises and that Arachosia was their home country.

Moneyērs' marks from Azes I onwards

So far the evidence of style and fabric coupled with that of the moneyers' marks has been tolerably clear, but from the reign of Azes I onwards there is little help to be got from the moneyers' marks. Of the thirty-two types of Azes I described in the *Panjab Mus. Catalogue*, twenty-three are linked together in one group by their marks,[4] three (nos. 12, 18 and 19) share a single mark (29), three (nos. 1, 6, 17) have a single mark each (nos. 6, 20 and 30 respectively),[5] which differ from the rest, and three have no marks at all. From these facts it would be natural to conclude that the bulk of Azes I coins, i.e. those belonging to the twenty-three types referred to above, were all struck in the same mint, that mint being no doubt at Taxila, but a difficulty in the way is that some of the coins in this group (e.g. *P.M. Cat.* nos. 179–83, 255) are quite different in style from the coins minted at Taxila, and cannot possibly be the work of the same engravers. How, then, are we to explain this anomaly? I think we must draw one of two inferences:

[1] *B.M. Cat.* Pl. XXII, no. 2.

[2] *Ibid.* Pl. XVI, no. 3.

[3] Cf. *ibid.* Pl. XVIII, nos. 10 and 11; Pl. XX, nos. 9–11, and *P.M. Cat.* nos. 179, 183, 319, 339, 347.

[4] The twenty-three types are *P.M. Cat.* nos. 2–5, 7–11, 13–16, 20, 21, 22, 24, 25, 27, 29, 30–2. The moneyers' marks which link them together are nos. 7–19, 21–8, and 31–3.

[5] Mark 6 which is found on type I is similar to that on coins of Hippostratus (*B.M. Cat.* p. 59, nos. 4–9).

either that the provincial mint in Arachosia was closed and the local engravers brought to Taxila; or (which seems more likely) that the imperial mints, whether at Taxila, Demetrias or elsewhere, were placed under unified control, and that the controller had his marks stamped on all issues of imperial coins irrespective of their place of origin. The need for such centralisation in the matter of currency may well have become accentuated as the empire expanded towards the east.

Coinage of Azilises

The above remarks apply also to the coinage of Azilises, though the moneyers' marks used by this emperor are no more than eleven in all, including four of his predecessor's.[1] If we take account only of the types and style of Azilises' coins, we can readily divide them into groups and assign them to seemingly appropriate mints. Thus among the silver issues we should naturally assign the type 'Mounted king and Zeus standing with sceptre' (*P.M. Cat.* Pl. XIII, no. 320) to Taxila; the type 'Zeus Nikephoros enthroned and Dioscuri charging' (*ibid.* nos. 325, 326) to Kāpiśī, and the type 'Mounted king and Lamp goddess' (*ibid.* nos. 339–47) to Arachosia. And similarly, among the copper issues, we should assign the 'Mounted king and Heracles' and the 'Heracles and horse' types (*ibid.* Pl. XIV, nos. 353, 387) to Arachosia and the 'Elephant and bull' type (*ibid.* no. 363) to Taxila or Pushkalāvatī. But when we turn to the moneyers' marks we find that, though they bear out this grouping in some cases, they do not bear it out in others. Thus the Zeus Nikephoros and Dioscuri coins are all linked together by the exclusive use of monograms nos. 35 and 36, and with them are also linked the 'Mounted king and standing Dioscuri' type (*ibid.* nos. 327 and 328). On the other hand, the very distinctive 'Lamp goddess' types (*ibid.* nos. 339, 347) are linked by their monograms (nos. 25, 28, 39 and 40) not only with earlier coins of Azes I of the same type and with the 'Mounted king and Heracles' of Azilises, which we should expect, but with the 'Mounted king and Pallas' and 'Bull and lion' types of Azes I (*ibid.* nos. 165 and 264) and the 'Mounted king and elephant' type of Azilises (*ibid.* no. 362). Here again, therefore, it looks as if these monograms were not always characteristic of particular mints, though they may sometimes have been so.

Deterioration of engraving and progressive debasement of currency after Azilises

Under the later Greek kings, Dionysius, Apollophanes, Apollodotus II and Zoilus II, coin-engraving in the Eastern Panjāb was, as we have seen, at a very low ebb, and to judge by the coinage of Rājuvula and Bhadrayaśa, the deterioration became even more marked under the Śakas. The very fine silver issues of Azes I and Azilises bearing the Eastern Panjāb type of Athene Alkis and a similar monogram (e.g. *P.M. Cat.* Pl. XI, no. 127 and Pl. XIII, no. 331) were almost certainly minted at Taxila.[2]

After Azilises the whole imperial coinage became greatly debased. Not only was billon substituted generally for silver but there was an equally marked deterioration in design and execution. The use of billon in place of silver followed, as

[1] Viz. *P.M. Cat.* nos. 10, 19, 25 and 28.

[2] The monograms on these coins (nos. 16 and 19) link them with many other types of Azes I, notably *P.M. Cat.* nos. 4, 7, 9, 24, 25 and 27, but whether all of these issued from the same mint is very doubtful.

STRATIGRAPHICAL AND GROUP CHART OF ŚAKA AND PARTHIAN COINS FOUND IN SIRKAP

Metal	Ruler	Type	Greek and earlier. Strata VII, VI and V	Early Śaka. Stratum IV	Late Śaka and Parthian. Strata III and II	Surface. Stratum I	Total	References (R.U.C. = 'List of Rare and Unique Coins', ch. 39)	No. of groups in which they occur	Names of other rulers with which each is associated and number of groups in which they are associated. The latter is specified only when more than one
Æ	Maues	(*a*) Mounted king and goddess striding r.	—	—	1	1	2	R.U.C. nos. 118–19	12	Local Taxilan (3), Euthydemus, Apollodotus I, Hermaeus (3), Śpalyris with Śpalagadames, Azes I (4), Azes II (2), Rājuvula, Kadphises I (4), Kadaphes (2), Soter Megas
Æ	Maues	(*b*) Zeus standing and male deity facing	—	1	1	—	2	R.U.C. no. 113		
AR	Maues	(*c*) Zeus to l. and Nike (silver)	1	—	—	—	1	*P.M. Cat.* Pl. x, no. 1		
Æ	Maues	(*d*) Similar (copper)	—	—	—	1	1	R.U.C. no. 126		
Æ	Maues	(*e*) Zeus enthroned and city goddess	—	—	—	1	1	R.U.C. no. 112		
Æ	Maues	(*f*) Poseidon with trident in l. hand and r. hand on knee: Vine goddess	6	3	7	1	17	R.U.C. no. 117		
Æ	Maues	(*g*) Similar, but r. hand hurls thunderbolt	—	—	2	—	2	R.U.C. no. 114		
Æ	Maues	(*h*) Poseidon striding l. and hurling thunderbolt: Vine goddess	—	2	1	1	4	R.U.C. nos. 115–16		
Æ	Maues	(*i*) Apollo and tripod-lebes	—	2	10	3	15	R.U.C. nos. 120–2		
Æ	Maues	(*j*) Artemis and bull	3	1	3	3	10	R.U.C. nos. 129–30		
Æ	Maues	(*k*) Heracles and lion	—	—	1	—	1	R.U.C. no. 111		
Æ	Maues	(*l*) Male deity with club and goddess	—	—	2	2	4	R.U.C. nos. 127–8		
Æ	Maues	(*m*) Elephant and king seated cross-legged	—	—	1	—	1	R.U.C. no. 131		
Æ	Maues	(*n*) Elephant and bull	2	1	—	—	3	R.U.C. no. 125		
Æ	Maues	(*o*) Elephant's head and caduceus	7	5	26	3	41	*P.M. Cat.* Pl. x, no. 5		
Æ	Maues	(*p*) Horse and bow in case	—	—	2	—	2	R.U.C. nos. 123–4		
Æ	Vonones with Śpalahores	Heracles and Pallas	6	4	14	4	28	R.U.C. nos. 132–3		
Æ	Śpalyris with Śpalagadames	Mounted king and Heracles	1	..	2	1	4	R.U.C. nos. 134–5		
Æ	Azes I	(*a*) King seated and Hermes	7	105	581	169	862	R.U.C. nos. 136–7	185	Punch-marked (2), Local Taxila (24), Euthydemus, Archebius, Apollodotus I (2), Apollodotus II (2), Zoilus II, Hippostratus (3), Telephus (2), Hermaeus (including later imitations, 18), Maues (4), Vonones (2), Azes II (69), Heraus, Rājuvula (4), Gondophares (18), Abdagases (3), Kadphises I (66), Kadaphes (28), Soter Megas, Kanishka, Kuninda
Æ	Azes I	(*b*) Do. and Pallas	—	1	3	—	4	*I.M. Cat.* p. 48, no. 75		
Æ	Azes I	(*c*) Mounted king and Zeus Nikephoros (copper)	4	25	122	38	189	R.U.C. nos. 155 and 158–60 and *P.M. Cat.* Pl. xi, nos. 56 and 122		
Æ	Azes I	(*d*) Mounted king and Zeus standing	—	1	4	—	5	Cf. *P.M. Cat.* Pl. xi, no. 36		
Æ	Azes I	(*e*) Do. and Zeus hurling thunderbolt	—	—	1	—	1	R.U.C. no. 149		
Æ	Azes I	(*f*) Do. and Pallas crowning herself	1	2	3	1	7	R.U.C. nos. 150–1		
Æ	Azes I	(*g*) Do. and Pallas standing	4	8	15	1	28	*P.M. Cat.* Pl. xi, nos. 158 and 166		
AR	Azes I	(*h*) Do. and Poseidon (silver)	—	1	1	—	2	*P.M. Cat.* Pl. xi, no. 177		
Æ	Azes I	(*i*) Similar (copper)	—	1	—	—	1	*P.M. Cat.* Pl. xi, no. 177		
Æ	Azes I	(*j*) Do. and Goddess with lamp	—	—	1	—	1	*P.M. Cat.* Pl. xi, no. 183		

Æ	Azes I	(*k*) Mounted king and bull (square)	1	4	8	2	15	R.U.C nos. 153–4		
Æ	Azes I	(*l*) Similar (round)	—	1	2	—	3	R.U.C. no. 139		
Æ	Azes I	(*m*) Zeus and Nike	—	—	2	—	2	R.U.C. no. 146		
Æ	Azes I	(*n*) Poseidon and goddess in vines	1	3	10	—	14	R.U.C. nos. 143–4		
Æ	Azes I	(*o*) Hephaestus and lion	—	—	1	—	1	R.U.C. no. 147		
Æ	Azes I	(*p*) Demeter enthroned and Hermes	—	8	31	10	49	R.U.C. no. 152		
Æ	Azes I	(*q*) Goddess with flower and bull	1	1	—	—	2	R.U.C. nos. 156–7		
Æ	Azes I	(*r*) Elephant and bull (round)	4	20	30	4	58	R.U.C. no. 138		
Æ	Azes I	(*s*) Similar (square)	—	—	1	—	1	*P.M. Cat.* no. 289*a*		
Æ	Azes I	(*t*) Bull and lion	1	4	28	13	46	R.U.C. no. 148		
Æ	Azes I	(*u*) Elephant and lion	—	—	1	—	1	R.U.C. no. 141		
Æ	Azilises	(*a*) Mounted king and Zeus	—	—	1	—	1	*P.M. Cat.* Pl. XIII, no. 320		
Æ	Azilises	(*b*) Do. and Dioscuri standing	—	1	—	—	1	*P.M. Cat.* Pl. XIII, no. 327		
Æ	Azilises	(*c*) Do. and goddess with lamp	—	—	1	—	1	R.U.C. no. 167		
Æ	Azilises	(*d*) Do. and Heracles seated	—	—	1	—	1	*P.M. Cat.* Pl. XIV, no. 353		
Æ	Azilises	(*e*) Do. and bull	—	—	1	—	1	R.U.C. no. 162		
Æ	Azilises	(*f*) King standing and deity standing	—	—	2	1	3	R.U.C. no. 166		
Æ	Azilises	(*g*) Enthroned goddess to r. and Heracles Nikephoros	—	—	1	—	1	R.U.C. no. 165		
Æ	Azilises	(*h*) Heracles and horse	—	—	1	—	1	R.U.C. no. 161		
Æ	Azilises	(*i*) Elephant and bull	—	—	1	—	1	R.U.C. no. 164		
Æ	Azes II	(*a*) Mounted king and Zeus Nikephoros	9	32	982	261	1,284		238	Punch-marked, Local Taxila (29), Archebius, Heliocles, Apollodotus II (3), Hippostratus, Hermaeus (18), Maues (2), Azes I (65), Vonones (3), Azes II and Aśpavarma (13), Kharahostes, Rājuvula (5), Iṁdravasa, Gondophares (45), Abdagases (2), Kadphises I (99), Kadphes (4), Kadphises II, Vāsudeva, Sāmantadeva
AR	Azes II	(*b*) Similar (base silver)	—	—	—	6	6			
Æ	Azes II	(*c*) Do. and Pallas standing	—	—	5	—	5	*P.M. Cat.* Pl. XII, nos. 252 and 317		
Æ	Azes II	(*d*) Do. and Demeter	—	—	6	—	6	*P.M. Cat.* Pl. XII, no. 231		
Æ	Azes II	(*e*) Lion and Demeter	—	6	58	23	87	R.U.C. no. 145		
		(N.B. Some of the two types 'Mounted king and bull' and 'Demeter enthroned and Hermes', which are listed under Azes I, are probably referable to Azes II)								
Æ	Azes II and Aśpavarma (?)	Mounted king and Pallas	1	—	137	22	160	R.U.C. nos. 168–73	27	Punch-marked, Local Taxila (2), Archebius, Azes I (4), Azes II (13), Gondophares (19), Abdagases, Kadphises I (7), Kadaphes (4)
Æ	Heraus	(*a*) Bust of king and mounted king	—	—	1	—	1	R.U.C. no. 174	1	Azes I, Gondophares
Æ	Heraus	(*b*) Do. and standing figure	—	—	1	—	1	R.U.C. no. 175		
Æ	Kharahostes	Mounted king and lion	—	—	1	—	1	R.U.C. no. 189	1	Azes II
Æ	Rājuvula	(*a*) Diad. bust of king and Pallas	—	—	1	—	1	R.U.C. no. 183	18	Local Taxila (4), Eucratides, Hermaeus (2), Maues, Azes I (4), Azes II (5), Gondophares (2), Kadphises I (6), Kadaphes, Huvishka
Æ	Rājuvula	(*b*) Mounted king and Zeus Nikephoros	—	—	1	—	1	R.U.C. no. 182		
Pl.	Rājuvula	(*c*) Lion and Heracles	—	5	114	39	158	R.U.C. nos. 176–81		

STRATIGRAPHICAL CHART (*continued*)

Metal	Ruler	Type	Greek and earlier. Strata VII, VI and V	Early Śaka. Stratum IV	Late Śaka and Parthian. Strata III and II	Surface. Stratum I	Total	References (R.U.C. = 'List of Rare and Unique Coins', ch. 39)	No. of groups in which they occur	Names of other rulers with which each is associated and number of groups in which they are associated. The latter is specified only when more than one
Billon	Bhadrayaśa	Bust of king and Pallas	—	—	1	—	1	R.U.C. no. 184		
Æ	Iṁdravasa	Mounted king and Pallas	—	—	8	—	8	R.U.C. nos. 185–8	1	Hermaeus, Azes II, Kadaphes
Billon	Gondophares	(a) Mounted king and Pallas	—	—	4	1	5	*P.M. Cat.* Pl. xv, no. 38	92	Punch-marked, Local Taxila (2), Euthydemus, Archebius, Menander, Hermaeus (6), Maues, Azes I (18), Rājuvula (2), Azes II (64), Vonones with Śpalahores, Abdagases (3), Heraos, Kadphises I (34), Kadaphes (8), Vāsudeva
Æ	Gondophares	(b) Bust of king and winged Nike	—	1	18	1	20	R.Ú.C. nos. 192–4		
Æ	Gondophares	(c) Do. and Pallas (rude)	—	3	60	19	82	R.U.C. nos. 195–8		
Æ	Gondophares (with Aśpavarma)	Mounted king and Zeus to r.	—	—	1	—	1	R.U.C. no. 190		
Æ	Gondophares (with Sasan)	(a) Similar	1	3	216	26	246	R.U.C. no. 191		
Æ	Gondophares (with Sasan)	(b) Similar but Zeus to l.	—	—	1	—	1	*P.M. Cat.* Pl. xv, no. 34		
Æ	Gondophares (with Sasan)	(c) Mounted king and Zeus Nikephoros to l.	—	2	330	57	389	*P.M. Cat.* Pl. xv, no. 20		
Æ	Abdagases	(a) Mounted king and Zeus with sceptre to r.	—	1	8	5	14	R.U.C. no. 199	10	Hermaeus (2), Azes I (3), Gondophares (3), Kadphises I (4), Kadaphes (2)
Æ	Abdagases	(b) Do. and Zeus to l.	—	—	14	3	17	*P.M. Cat.* Pl. xv, no. 64		
Æ	Abdagases	(c) Bust of king and winged Nike	—	—	1	2	3	*P.M. Cat.* Pl. xv, no. 70		
AR	Zeionises	Mounted king and king being crowned by deity with cornucopiae	—	—	1	—	1	R.U.C. no. 200		
AR	Pacores (?) with Sasan	(a) Bust of king and Nike to l.	—	—	19[1]	—	19	R.U.C. nos. 201–8	1	Sapedanes, Satavastra, Kadphises II
AR	Anonymous	(b) Mounted king and deity to front	—	—	11	—	11	R U.C. no. 209		
AR	Sapedanes	Bust of king and Nike to l.	—	—	6[1]	—	6	R.U.C. nos. 211–16	1	Sasan, Satavastra, Kadphises II
AR	Satavastra	Do. and Nike to r.	—	—	5[1]	—	5	R.U.C. nos. 217–21	1	
Æ	Iśpara (?)	Mounted king and Pallas to r.	—	—	1	—	1	*A.S.R.* (1914–15), Pl. xxix, no. 28		
			61	258	2,939	725	3,983			

[1] For stratification, see p. 160.

I have already noticed, the increasing trade contacts with the Andhra empire and the precedent already set by Rājuvula. But the abrupt falling off in artistry and workmanship is not so easily explained. It looks as if there must have been some sudden catastrophe—an earthquake perhaps or plague—which wiped out the mint and its engravers.

Mints in Sīstān and Sind

So far as we know at present, the Śakas possessed no mint to the west or south of Arachosia. There was a Parthian mint, however, in Sīstān, and it was there, in all probability, that coins of Orthagnes, Gondophares, Abdagases and Pacores, with the type 'Bust of king and Victory', were minted. There would seem to have been another mint also in Sind or thereabouts, where the silver hemidrachms of Sasan, Sapedanes, Satavastra and Kadphises, to which allusion has already been made, were minted.

KUSHĀN AND LATER COINS[1]

Kadphises I (Kujūla)

The coins of Kadphises I (Kujūla) found in Sirkap were very numerous, all but three being of copper. They comprised 2,106 of the type 'Bust of Hermaeus and Heracles', viz. 127 with the name of Hermaeus in Greek on the obverse (type (*a*) = R.U.C. nos. 222–4) and 1,979 with the name of Kujūla Kadphises on the obverse (type (*b*) = R.U.C. nos. 225–34), including four specimens of a variety in which the bust of Hermaeus is turned left instead of right. If, moreover, as seems virtually certain, Kujūla Kadphises is identical with Kadaphes, then we have to add a further 412 of the latter's coins, viz. 334 of the type 'Diademed head and king in curule chair' (type (*c*) = R.U.C. no. 249) and 78 of the type 'King seated and Zeus standing' (type (*d*) = R.U.C. nos. 240–8). This brings the total from Sirkap to 2,522, including the four silver pieces noticed below. Compared with this the number from other sites (72) is not a large one, but it is noteworthy that the majority of the latter come from the later Buddhist settlements, and it is evident therefore that they were still current some centuries after the death of Kadphises I. The seventy-two coins referred to comprised sixteen of type (*a*), forty-eight of type (*b*), seven of type (*c*), and one of type (*d*).[2]

If I am right in concluding that the conquest of Gandhāra and Taxila was achieved by V'ima Kadphises acting on behalf of his father Kujūla, we must presume that V'ima imported the copper coinage of Kujūla in considerable bulk from Kāpiśī, and put it in circulation at Taxila during his father's lifetime. Later, as we shall see, he was to supplement it by striking coins in his own name as crown prince.

Silver coins of Kadphises I (?)

The silver pieces referred to above (R.U.C. nos. 258–60) have been attributed by Rapson to V'ima Kadphises on the ground that the king is wearing the same sort of conical hat that distinguished that emperor on some of his other coins. It

[1] For the Kushān and later rulers, see also pp. 66–78, 85–6, 212–13, 817–29, 840–2.

[2] Of the seventy-two coins in question, thirty-four came from the Dharmarājikā, eleven from Chir Tope, B, C and D, six from Sirsukh, four each from Mahal and Jaṇḍiāl, three from Giri, two each from Kālawān and Jauliāñ, and one each from Pippala, Bhallar, Hathiāl, Ghai, Rattā Piṇḍ and Mohṛā Morādu.

should be noted, however, that the conical hat, which was no doubt a characteristic feature of Kushān dress, was worn also by Kanishka and Huvishka, though it is sometimes replaced, as it is in the case of V'ima Kadphises, by other forms of head covering. It is natural to suppose, therefore, that it would have been worn also by Kujūla Kadphises, whose head is not portrayed on other issues of his coinage. The legend as well as the type, fabric and style, which mark the transition from Parthian to Kushān rule, all point to Kujūla rather than to V'ima as the king represented.

Kadphises II (V'ima)

We have come now to the point at which the very abundant supply of coins from Sirkap begins to fail us. It was under Kadphises II that the new capital of Sirsukh was built, and this explains why only thirty-seven of his coins (all copper) were found in the older Sirkap, viz. thirteen of the common 'Śiva and bull' type (*P.M. Cat.* Pl. XVII, no. 36), and twenty-four of the 'Bull and camel' type (R.U.C. nos. 235–9), which he seems to have struck as crown prince (Kara Kadphises) in the Pushkalāvatī mint, possibly before he had advanced across the Indus to the conquest of Taxila. Besides these thirty-seven specimens from Sirkap, twenty-seven more were found on other sites, viz. twenty-four of the 'Śiva and bull' type, two of the 'Bull and camel' type, and one uncertain, showing bust on obverse and reverse defaced.[1] All told, therefore, the coins of this ruler number no more than sixty-four, less that 2½ per cent of those of his father Kujūla! Others will doubtless be recovered when Sirsukh comes to be excavated, but to judge by the numbers now offered for sale in the bazaars of the North-West, it may be doubted if they were ever as common as the Kujūla coins. The reason for this may be that, according to the *Hou Han-shu*, Kadphises II left India, presumably after his father's death, and appointed a viceroy to govern the country on his behalf; and that thenceforward the copper coinage was issued by the viceroy, and only the gold coinage in the name of the emperor himself.

Soter Megas

The viceroy in question is now generally identified with the nameless ruler 'Soter Megas', whose coinage, exclusively of copper, is abundant from Peshāwar to the Jumna valley. He is linked with Kadphises II by his title of 'Soter Megas'—a title first used by that emperor, who posed, we may believe, as the saviour of the Śakas from Parthian tyranny. On the other hand, the horseman and certain other features of his coinage which are characteristically Śaka may denote that he was a member of one of the older ruling families. At Taxila, his coinage is represented by 101 specimens, viz. twelve from Sirkap and eighty-six from other sites, of the 'Bust of king and horseman' type,[2] and three from the Dharmarājikā of the 'Nude figure and goddess with cornucopia' type (R.U.C. nos. 250 and 251).[3]

[1] Pippala, no. 156. Cf. Cunningham, *Coins of the Kushāns*, Pl. XV, no. 14. Of the twenty-seven coins from other sites eleven came from the Dharmarājikā, four from Sirsukh, three from Jaṇḍiāl, two each from Kālawān, Jauliāñ, Bādalpur, and one each from Giri, Pippala and Mohṛā Morādu.

[2] *P.M. Cat.* Pl. XVI, no. 100. Of the eighty-six coins of this type from other sites, twenty-two come from the Dharmarājikā, ten from Chir Tope B, sixteen from Chir Tope C, one from Chir Tope D, five each from Giri and Kālawān, nineteen from Jaṇḍiāl, two each from Jauliāñ, Mohṛā Morādu, Kholay, and Bādalpur.

[3] Types (α), (β) and (δ) of the *P.M. Cat.* have not been found at Taxila.

To about this period (latter part of first century A.D.) belongs, in all probability, the striking series of eleven square copper pieces of Vijayamitra and other rulers of Kulū (R.U.C. nos. 253–7), which were found in Block I of Sirkap—ten in one group and the other a few feet away (pp. 170, 213). These coins are unique, the only other known piece of the Kulūtas being a round silver drachm of Vīrayaśa, from the Cunningham collection now in the British Museum (*B.M. Cat.* pp. c and 158 and Pl. XVI, no. 4). On epigraphical and other grounds Allan assigns this silver piece to a date 'round about A.D. 100'. The copper pieces may be a few decades earlier, since stylistically they appear to be somewhat older than the silver one, but their findspot points to their having been buried in the early Kushān period, and there cannot in any case be much difference in date. The types of the new copper coins are purely Indian, consisting of groups of religious symbols on both obverse and reverse, viz. the arched *chaitya*, standard *triratna*-in-railing, tree-in-railing, circlet surrounded by four *triratnas*, lotus plant, *nandipada*, swastika and *jayastambha*. The silver piece shows a somewhat similar group of symbols (including the *nāga* symbol) on its reverse, but on its obverse only a single *dharmacakra* encircled by the legend *Vīrayaśasya rajña kulūtasya*. All these symbols, it should be observed, were employed by the Buddhists, but that does not necessarily imply that Buddhism was at this time the prevailing religion among the Kulūtas. Vijayamitra and other rulers of Kulū

After the transfer of the capital by V'ima Kadphises to the new site in Sirsukh, the older city still continued in partial occupation, and could boast of a few inhabitants even as late as the eleventh century A.D., but from the reign of Kanishka onwards our coins come mainly from the later Buddhist settlements—the Dharmarājikā, Kālawān, Jauliāñ, etc.—and are, it need hardly be said, fewer in number and much less representative than those from the city sites.

Of 157 coins of Kanishka I—all copper—thirty-nine only came from Sirkap, and the remaining 118 from the Buddhist settlements noted below.[1] Four of the 157 are defaced; of the rest, forty-four show the Sun-god (Mithro) on the reverse, twenty-eight Nanaia (Anahita), twenty-one the Moon-god (Mao), twenty the bearded Metal-god (Athsho), nineteen the Wind-god (Oado), fourteen the two-armed Śiva, three the four-armed Śiva, three Buddha, and one an uncertain deity standing to left. The last named and the specimens of 'King at altar and Buddha seated on throne' (R.U.C. nos. 261 and 262) are very rare. Kanishka I

The only coin-finds of Kanishka I and his successors that have a direct bearing on their date were those made in the relic chambers of the stūpas K3 and P6 at the Dharmarājikā, details of which are given at p. 263.

Huvishka is represented by seventy-three copper coins[2] of the following types, Huvishka

[1] Viz. forty-four from the Dharmarājikā, fourteen each from Jaṇḍiāl and Kālawān, twelve each from Mohṛā Morādu and Sirsukh, ten from Chir Tope B, C and D, eight from Jauliāñ, three from Pippala and one from Giri.

[2] They comprise: forty-four from the Dharmarājikā, four from Sirkap, five from Jauliāñ, three each from Jaṇḍiāl and Kālawān, two each from Chir Tope B and C, Giri and Kholay, and one each from Mahal, Bhallaṛ, Mohṛā Morādu, Piṇḍora, Ghai and Bhamāla.

viz.: (*a*) 'King on elephant and Sun-god' (9); (*b*) 'Ditto and Moon-god' (9); (*c*) 'Ditto and deity with purse' (3); (*d*) 'Ditto and Heracles' (2); (*e*) 'Ditto and Śiva' (12); (*f*) 'Ditto and goddess with cornucopiae' (2); (*g*) 'Ditto and standing deity' (7); (*h*) 'King reclining on couch and Sun-god' (2); (*i*) 'Ditto and Moon-god' (1); (*j*) 'Ditto and Nanaia' (1); (*k*) 'Ditto and two-armed Śiva' (1); (*l*) 'Ditto and uncertain deity'; crude copies (11); (*m*) 'King seated cross-legged and Sun-god' (1); (*n*) 'Ditto and Moon-god' (3); (*o*) 'Ditto and Metal-god' (2); (*p*) 'Ditto and four-armed Śiva' (1); (*q*) 'Ditto and standing deity' (4); (*r*) 'King seated to front and standing deity' (1); (*s*) 'Bust of king and Sun-god' (1). Four of the above types (*a*, *g*, *k* and *n*) are rare. Cf. R.U.C. nos. 263–7.

Vāsudeva

Vāsudeva's coins are far more numerous than those of any Kushān king from Kanishka I onwards. They number 1,904 in all, viz. 1,584 of the 'Śiva and bull' type (including 615 of rude later type) and 320 of the 'Seated goddess' type. All are of copper. Of the 1,904 specimens, twenty-seven come from Sirkap, eight from Jaṇḍiāl, eleven from Sirsukh (Piṇḍora) and one each from the Bhiṛ Mound and Hathiāl. The remaining 1,856 are from Buddhist sites, including 1,334 from the Dharmarājikā, 253 from 'Chir Tope B', 165 from Kālawān, forty-nine from Mohṛā Morādu, thirty-six from Jauliāñ and the remainder from the sites noted below.[1] The question may be asked why such a large number of this ruler's coins are found on Buddhist sites, not only at Taxila but throughout the North-West of India. The reasons, I think, are three: first, that Buddhism was in a particularly flourishing condition during Vāsudeva's reign; secondly, that Vāsudeva's coins continued to circulate, and be imitated, long after his death; and thirdly, that at some time while they were in circulation, either before or after the emperor's death, a catastrophe happened, doubtless due to hostile invasion,[2] which caused numbers of small hoards to be hastily buried.

Bacharaṇa, Bhadra and other late Kushān rulers

Of later Kushān rulers, subsequent to Vāsudeva, Bacharaṇa[3] is represented by a single gold coin (R.U.C. no. 270) from the Bhamāla site, and Bhadra by two gold ones from the Dharmarājikā (*ibid.* nos. 271 and 272). Besides these there are thirty copper coins of the later Kushān period which cannot be identified with any known rulers. Eleven of them come from Jauliāñ, six each from the Dharmarājikā and Sirsukh, three each from Kālawān and Sirkap, and one from Bhamāla (*ibid.* no. 269). The usual type of these copper pieces is 'King at altar and seated goddess', but in many the design is so debased or defaced as to be beyond recognition. No. 269, from Bhamāla, is a new type, showing 'King seated front on throne, and seated goddess with cornucopia'. We have no precise information as to the date of Bacharaṇa and Bhadra or the territory over which they ruled, but the findspots of their coins point to their having been in circulation at the time of the White Hun invasion, and their types and style link them closely with the later Kidāra

[1] Five from Bhamāla, three each from Giri and Pippala, two each from Chir Tope A and D, Bhallaṛ and Bādalpur.

[2] The invasion in question may well have been that of Ardashīr (A.D. 226–40), whose army, according to Firishta, reached the neighbourhood of Sarhind.

[3] For a finger-ring inscribed with the name Bacharaṇa, see 'Finger-rings', ch. 31, no. 56.

coins, which were also in circulation at that time and which on other grounds may be assigned to the fifth century A.D.

Kidāra Kushāns

Of the late Kushān rulers belonging to the house of Kidāra, four gold and twenty-three electron pieces came from the Dharmarājikā and one silver piece from Mohṛā Morādu. The last-mentioned (R.U.C. no. 275), with the head of Kidāra to front, is in the Sasanian style and anterior to the gold and electron pieces. Were it not for its Brāhmī legend, we might well suppose that it had been struck at Balkh. As it is, we must conclude that the engravers responsible for this and for other coins in the same Sasanian style issued by Kidāra and his immediate successors, Piro and Varahrān, were brought from Balkh to Peshāwar when the Kushāns were dispossessed of Bactria by the Huns[1] in the latter part of the fourth century A.D. According to M. F. C. Martin, this is one of the later coins of Kidāra, when he was asserting a measure of independence from his Sasanian overlords. The gold and electron coins of the Kidāra dynasty (R.U.C. nos. 273 and 274) are of the typical Kushān type and presumably date from a time when an end had been made of Sasanian suzerainty south of the Hindu Kush.[2] The four gold pieces and eleven of the electron pieces were in a hoard which also contained two gold pieces of Bhadra and two of Chandragupta II (R.U.C. no. 276). This hoard was found in Court G, chamber C, of the great Dharmarājikā Monastery (p. 283). Of the remaining electron pieces, seven were found in room 6 of Court J at the same site along with three silver coins of the White Huns (pp. 288–9), and five were concealed in a hiding-place between chapel P 7 and P 10 (pp. 267, 271). In every case their findspot and associations point to their having been buried, intentionally or otherwise, when the Dharmarājikā was destroyed by the White Huns.

Copper currency of the late Kushāns

The small copper currency of the late Kushāns, including the house of Kidāra, which was in use at Taxila up to the advent of the White Huns, is represented by more than 800 coins, the bulk of which come from the Dharmarājikā and Bhamāla sites. Commonest by far among them is the type 'Crude standing figure and square within dotted circle', varied not infrequently by a blank on the obverse (R.U.C. nos. 344–6). In other less common types of this period the 'square within dotted circle' of the reverse is replaced by three or more parallel lines (*ibid.* nos. 342–3, 347–9) or by the Brāhmī characters *pal* (?) within dotted border (*ibid.* nos. 350, 352). There are also a few others of these very debased designs which hardly admit of description (e.g. *ibid.* nos. 351, 354, 359). The crude standing figure is no doubt derived from the 'King at altar' type familiar on Kushān coins (e.g. no. 347). What the square in dotted circle or parallel lines, etc. of the reverse may

[1] Called 'Hiung-nu' in the Weï-shu, but Jouan-Jouan' by T'ong-Tien and Ma-twan-lin. Cf. Martin, 'Coins of Kidāra and the Little Kushāns' in *J.R.A.S.B.*, Letters, vol. III (1937), no. 2, pp. 23–50 and Pls. 1–5. They are probably to be identified with the Chionitae of Ammianus, and are not to be confused with the Ephthalites or White Huns (Chinese = *Ye-tha*), who did not appear on the scene until the following century.

[2] Martin takes the view that the White Huns were responsible for putting an end to Sasanian suzerainty in Gandhāra, but I find no evidence to support this view.

represent, is less apparent. Possibly they are derived from the Sasanian altar, which had been common on copper coinage at Taxila in the fourth century A.D.

That these small copper coins were current at Taxila at the time when it was overrun by the White Huns, and had been current there for a considerable time before that event, is clearly demonstrated by the positions in which many of them were found. Thus, at Bhamāla, 118 specimens of the type 'Crude standing figure and square within dotted circle' (R.U.C. nos. 344–6) were found in the body of the main stūpa. At the same site, another group of 160 coins of the same type came from the relic chamber of the subsidiary stūpa A 15, which must have been erected after, but not necessarily long after, the main stūpa. And a third group of six specimens, also of the same type, came from the relic chamber of stūpa A 5, where they were associated with a silver piece of Varahrān IV (R.U.C. no. 279), who was reigning between the years A.D. 388 and 399.[1] Similarly the Dharmarājikā yielded two considerable hoards, which there is reason to suppose had been hidden on the occasion of the White Hun invasion, viz.: (*a*) a hoard of 285 of these coins along with eighteen Sasanian and two (late) of Vāsudeva in a block of stone on the procession path of the Great Stūpa; and (*b*) a hoard of 355 coins mainly of this type in the debris on the western steps of the Great Stūpa.[2] Other coins of the same types, but in smaller numbers, were found amid the ruins of the Buddhist settlements at Giri, Mohṛā Morādu, Jauliāñ, Pippala and Lālchak, all of which combine to indicate that these small Kushān *paisa* were in circulation for at least two or three generations before the arrival of the Huns. No doubt they took the place of the Indo-Sasanian currency described below. In the body of this work I have frequently referred to this currency as 'Late Indo-Sasanian', adopting the name given to it by Cunningham, but now that we are in a position to distinguish it clearly from the Sasanian and Indo-Sasanian coinage which was in circulation at Taxila in the fourth century A.D., it would be preferable and more correct to designate it merely as 'Late Kushān'.

Sasanian rulers

Sasanian coins number about 300, one-third of which can be identified with known rulers. The bulk of these belong to the reigns of Shāpur II (A.D. 309–79) and Shāpur III (A.D. 383–8). Of the former there are sixty-three coins (R.U.C. nos. 279–82), fifteen of which came from the relic chamber of stūpa N 11 at the Dharmarājikā. Of the latter there are thirty-two (*ibid.* nos. 283 and 284). The coins of other Sasanian rulers are very few, viz. one of Ardashīr I, three of Hormizd, a governor of Shāpur I (*ibid.* no. 291), one of Varahrān II (*ibid.* no. 290), three of Varahrān IV (*ibid.* nos. 285–7), and one of Khusrū II (*ibid.* no. 288). None at all are referable to rulers of the fifth century A.D. Besides these identifiable coins, there are also 183 specimens of the 'Bust of king and squat altar' type, which cannot be assigned to any particular ruler but the bulk of which evidently date from the fourth century. It seems reasonable, therefore, to infer that Sasanian sovereignty was limited mainly to the period covered by the reigns of Shāpur II

[1] For these finds at Bhamāla, see pp. 393–4.
[2] For further details, see pp. 239–40.

and III. This extension of Sasanian power east of the Indus may be assumed to have resulted from the eastern wars of Shāpur II, which Ammianus Marcellinus tells us he waged between A.D. 350 and 358 against the Chionitae (? a tribe of the White Huns called 'Jouan-Jouan' by the Chinese) and the Cuseni (Kushāns) on his eastern frontiers, and there can be little doubt that it was brought to an end in the last quarter of the fourth century A.D. by the conquests of the Kidāra Kushāns described above. Although the people of Taxila were compelled during this period to adopt a Sasanian currency, it is noteworthy that there is no evidence to show that they were influenced to any appreciable extent by Sasanian culture.

Ephthalites or White Huns

Coins of the White Huns (R.U.C. nos. 300–13) number only thirty-two—all of silver, but they constitute a valuable series in themselves and all the more so because of the circumstances of their finding, which leave no room for doubt that it was the White Huns who were responsible for the wholesale destruction of the Buddhist *saṅghārāmas* of Taxila. All but one of their coins were found on the floors of the burnt-out monasteries, where some of the invaders evidently perished along with the defenders. Twenty of the coins were in the doorway of cell 13, and one in front of cell 8 at the Bhamāla monastery,[1] seven in the courtyard of the Lālchak monastery,[2] and three in room 6 of Court J at the Dharmarājikā, where several skeletons of those who fell in the fight, including one of a White Hun, were lying.[3] The earliest of the series is no. 300 (Pl. 245), which is of slightly superior style and bears a legend in Kushān Greek characters. The coin was presumably struck in Balkh before the Huns crossed to the south of the Hindu Kush. The rest of the series, which bear Brāhmī legends, could not have been issued until they were in the Paropamisadae or, more probably, in Gandhāra, but they were certainly executed by engravers versed in the Bactrian style and technique.

The proper names on these coins appear variously as 'Jabula', 'Jarusha', 'Jatukha' or 'Jaruba'. These may be the names of different rulers, but it is also possible that they are merely Brāhmī variants for the name of the Zabuli tribe of White Huns, which also takes the form of 'Jaüvla' or 'Jabuvlah' in Brāhmī, and of 'Zobol' in the Kushān Greek script.[4] It was this tribe which gave its name to Zabulistān to the south of Kābul, and which no doubt took a leading part among the Ephthalites in the conquest of Northern India.[5] As to the date of the coins, Sung-yun, who was in Gandhāra about 520 A.D., says that the White Huns (Ye-tha) had then been in possession of the country for two generations; i.e. he puts the date of their conquest about A.D. 460. The Kābul valley may have been occupied a little earlier and Taxila a little later, but the coins with Brāhmī legends can hardly have been struck before A.D. 450; nor can they be as late as A.D. 500, when, according to the now generally accepted chronology, Toramāṇa, father of Mihiragula, was already on the throne and established as far south as the Central Provinces.[6]

[1] Cf. p. 396. [2] Cf. p. 388. [3] Cf. pp. 287–9.
[4] For three copper bowls inscribed with the names *Jara(va)* and *Jasha(rā)ju*, see ch. 28, nos. 277 and 284 and p. 317. [5] Cf. Martin, *loc. cit.* pp. 35–6. [6] See also pp. 396–7.

STRATIGRAPHICAL AND GROUP CHART OF KUSHĀN AND MISCELLANEOUS COINS FOUND IN SIRKAP

Metal	Ruler	Type	Greek and earlier. Strata VII, VI and V	Early Śaka. Stratum IV	Later Śaka and Parthian. Strata III and II	Surface. Stratum I	Total	References (R.U.C. = 'Rare and Unique Coins, ch. 39)	No. of groups in which they occur	Names of other rulers with which each is associated and number of groups in which they are associated. The latter is specified only when more than one
Æ	Kujūla Kadphises (I)	(*a*) Bust of Hermaeus and Heracles with name of Hermaeus on obv.	2	2	93	30	127	R.U.C. nos. 222–4	18	Local Taxilan, Euthydemus, Hermaeus (2), Maues (2), Vonones with Śpalahores, Spalyris, Azes I (6), Azes II (5), Gondophares (2), Kadaphes
Æ	Kujūla Kadphises (I)	(*b*) Similar with name of Kujūla K. on obv.	2	27	1,684	262	1,975	R.U.C. nos. 225–30	222 (both rows)	Punch-marked, Local Taxilan (21), Euthydemus, Agathocles, Heliocles, Antialcidas, Apollodotus I (2), Menander (2), Hermaeus (19), Maues (2), Vonones (3), Azes I (60), Azes II (99), Gondophares (32), Abdagases (4), Soter Megas, Rājuvula (6), Kadaphes (2), Kanishka, Saṅgrāma, Sāmantadeva
Æ	Kujūla Kadphises (I)	Var. Do. with bust of Hermaeus to l.	—	—	4	—	4	R.U.C. nos. 231–4		
Æ	Kadaphes (? Kujūla Kadphises)	(*c*) Diademed head (Claudius?) and king seated in curule chair	—	2	249	83	334	R.U.C. no. 249	89 (both rows)	Local Taxilan (7), Apollodotus I, Hermaeus (13), Maues (2), Azes I (28), Azes II (44), Gondophares (8), Abdagases (2), Rājuvula, Kadphises I (30), Iṁdravasa
Æ	Kadaphes (? Kujūla Kadphises)	(*d*) King seated and Zeus standing	1	1	63	13	78	R.U.C. nos. 240–8		
Æ	Kujūla Kara Kadphises (? Kadphises II)	Bull and Bactrian camel	—	—	22	2	24	R.U.C. nos. 235–9		
AR	Kadphises I or II	Bust of king and Nike	—	—	3[1]	—	3	R.U.C. nos. 258–60	1	Sasan, Sapedanes, Satavastra
Æ	V'ima Kadphises (II)	King at altar and Śiva with bull	—	—	7	6	13	*P.M. Cat.* Pl. XVII, no. 36	1	Azes II
Æ	Soter Megas	Bust of king and horseman	—	—	8	4	12	*P.M. Cat.* Pl. XVI, no. 101	3	Maues, Azes I, Kadphises I
Æ	Kanishka I	(*a*) King at altar and Sun-god	—	—	3	7	10	*P.M. Cat.* Pl. XVIII, no. 73	4	Local Taxilan (2), Azes I, Kadphises I, Vāsudeva
Æ	Kanishka I	(*b*) Do. and Moon-god	—	—	1	5	6	*P.M. Cat.* Pl. XVIII, no. 76		
Æ	Kanishka I	(*c*) Do. and Nanaia	—	—	4	5	9	*P.M. Cat.* Pl. XVII, no. 57		
Æ	Kanishka I	(*d*) Do. and Metal-god	—	—	3	2	5	*P.M. Cat.* Pl. XVIII, no. 92		
Æ	Kanishka I	(*e*) Do. and Wind-god	—	—	2	4	6	*P.M. Cat.* Pl. XVIII, no. 83		
Æ	Kanishka I	(*f*) Do. and Śiva	—	—	2	1	3	*P.M. Cat.* Pl. XVIII, no. 106		

Æ	Huvishka	(*a*) King on elephant and Moon-god	—	—	1	—	1	*P.M. Cat.* Pl. XVIII, no. 140	1	Rājuvula
Æ	Huvishka	(*b*) King reclining and four-armed Śiva	—	—	1	—	1	*P.M. Cat.* Pl. XIX, no. 182		
Æ	Huvishka	(*c*) King seated cross-legged and standing deity	—	—	1	1	2	*P.M. Cat.* no. 203		
Æ	Huvishka	(*d*) King on couch and Sun-god	—	—	—	1	1	*P.M. Cat.* no. 173		
Æ	Vāsudeva	King at altar and Śiva with bull	—	1	9	6	16	*P.M. Cat.* Pl. XIX, no. 216	2	Local Taxilan, Azes II, Gondophares, Kanishka
Æ	Vāsudeva	Do. and seated goddess	—	—	5	6	11	*P.M. Cat.* Pl. XIX, no. 228		
Æ	Later Kushān	Do. and seated goddess. Rev. uncertain	—	—	—	3	3			
Æ	Little Yueh-chi	Do. Rev. defaced	—	1	—	—	1		1	Azes II
					MISCELLANEOUS					
Æ	Rājanya	Standing deity and humped bull	—	—	1	—	1	R.U.C. no. 109		
Æ	Kuninda	Female figure with stag and arched *chaitya*	—	—	1	—	1	R.U.C. no. 110	1	Azes I
Æ	Vijayamitra	Obv. Standard *triratna* in railing, lotus plant, etc. Rev. Arched *chaitya* surmounted by standard swastika and *vijaya* symbol	—	—	11	—	11	R.U.C. nos. 252–7		
Æ	Queen Diddā of Kashmīr	Goddess and king	—	—	1	—	1	R.U.C. no. 318		
Æ	Saṅgrāma do.	Similar	—	—	2	—	2	R.U.C. no. 319	1	Kadphises I
Æ	Sāmantadeva of Ohind	Elephant and lion	—	—	1	2	3	R.U.C. no. 321	1	Azes II, Kadphises I
Æ	Sāmantadeva of Ohind	Bull and horseman	—	—	1	—	1	R.U.C. no. 322		
Æ	Sāmantadeva of Ohind	Similar but ruder	—	—	—	1	1	R.U.C. no. 323		
Æ	Vakkadeva, do.	Elephant and lion	—	—	1	1	2	R.U.C. no. 324		
Æ	Uncertain and defaced	(Including one Indo-Sasanian, five Kashmīri and two Muhammadan)	2	3	27	7	39			
			7	37	2,211	452	2,707			

[1] For stratification, see p. 160.

Toramāṇa of Kashmīr

Whether this Toramāṇa is to be identified with Toramāṇa, king of Kashmīr, who issued the two coins, R.U.C. nos. 315 and 316, is still an open question, but it should be observed that there is a big difference, as to both style and types, between their coins. Whereas these two coins are in the strictly Kushān style, with the familiar types 'King standing at altar and seated goddess', the coins of the Ephthalite Toramāṇa (e.g. *I.M. Cat.* Pl. xxv; no. 4) bear the type 'Bust of king and solar symbol' and exhibit distant Sasanian rather than Kushān affinities.

Later kings of Kashmīr

A few other coins of the later rulers of Kashmīr have also been found at Taxila (R.U.C. nos. 317–19). They number ten in all and include: one of Vinayāditya (Jayāpīḍa, *c.* A.D. 750–80), one of Queen Diddā (A.D. 980–1003), two of Saṅgrāma (A.D. 1003–28), and one of Harsha (A.D. 1089–101). These, however, were merely chance finds from among the latest habitations at the Dharmarājikā and in Sirkap, and in any case are too few to be used as evidence of Taxila's political subservience to Kashmīr at the periods to which they belong. We know from Hsüan Tsang[1] that Taxila was tributary to Kashmīr in the seventh century, and it may well have continued so during the following century, when Kashmīr was still a powerful and influential state, though there is no concrete evidence of this. In the ninth century Taxila was in all probability a feudatory of the Turkī Śāhis of Kābul, whose dominion seems to have extended over the Panjāb as well as Gandhāra and the Paropamisadae, and subsequently of their successors, the Hindu Śāhis of Ohind on the Indus, to which the capital had been transferred after the conquest of Kābul by the Moslem Yā'kūb Lāis in A.D. 870. Of the kings of Ohind, Spalapatideva is represented by two copper coins of the 'Bull and horseman type' (R.U.C. no. 320), Sāmantadeva by fourteen coins, viz.: one silver and six copper of the 'Bull and horseman' type and seven copper of the 'Elephant and lion' type (R.U.C. nos. 321–3), and Vakkadeva by five copper of the 'Elephant and lion' type (R.U.C. no. 324).

Kings of Ohind

[1] Beal, *Buddhist Records of the Western World*, bk. III, p. 136.

Chapter 39. RARE AND UNIQUE COINS, OTHER THAN PUNCH-MARKED,[1] FOUND AT TAXILA BETWEEN 1912 AND 1934

Serial no. and Findspot	Metal and Size	Obverse	Reverse	Remarks
		PERIOD OF ARTAXERXES II, KING OF PERSIA		
1. Bm. '24–556 Sq. 32·26′ Stratum III	Ꝛ 0·66 (*siglos*)	The great king hastening r. holding bow and dagger	Incuse, defaced	*Siglos*, *c.* 400 B.C. Found in a hoard of punch-marked coins with nos. 2–4 *infra*. Cf. p. 105–6, 834, 843.
		ALEXANDER THE GREAT		
2. Bm. '24–556 *Ibid.*	Ꝛ 1·10	Head of Heracles(?) wearing lion skin	Zeus seated on throne with eagle on his r. hand and sceptre in l. Monogram M. Gr. legend: ΒΑΣΙΛΕΩΣ ΑΛΕΞΑΝΔΡΟΥ	*A.S.R.* (1924–5), Pl. IX, no. 3. Two of this type were found in the Bhir Mound. The mint is Myriandros in Northern Syria. For nos. 2–4, cf. pp. 105–6, 763, 834–5, 843
3. Bm. '24–556 *Ibid.*	Ꝛ 0·65	Same as preceding	Same as preceding. Monogram Σ. Legend ...ΛΕΞΑΝ...	*Ibid.* no. 4. Probably Babylon mint
		PHILIP III (ARIDAEUS)		
4. Bm. '24–556 *Ibid.*	Ꝛ 1·01	Same as preceding	Same as preceding. Monogram Ᵽ; above, Φ. Legend: ΒΑΣΙΛΕΩΣ ΦΙΛΙΠΠΟΥ	*Ibid.* no. 2. Babylon mint
		LOCAL COINS OF TAXILA. (Cf. pp. 26–7, 110, 756–63, 835, 855–6)		
5. Sk. '14–2,077 Sq. 58·74′ Stratum III	Æ 0·5	Swastika in incuse circle	Blank	*A.S.R.* (1914–15), p. 28, no. 3. Seven specimens from Bm., eleven from Sk. and one from Dh.
6. Kn. Stūpa	Æ 0·4	Arched *chaitya*(?) surmounted by crescent in incuse	Blank	*Ibid.* no. 5. Eight specimens from Sk.
7. Sk. '12–2,042 Sq. 56·63′ Stratum II	Æ 0·7	Swastika in incuse with taurine symbol in each arm	Blank	*B.M. Cat. Anc. Ind.* p. 238 and Pl. XLIV, 25. *A.S.R.* (1912), p. 45, no. 4. Seventeen specimens of this type from Sk., ten from Bm. and three from Dh.
8. Sk. '14–1,707 Sq. 67·70′ Stratum II	Æ 0·55	Similar	Similar	*A.S.R.* (1914), p. 28, no. 4

[1] For the punch-marked coins, see pp. 751–6, 853–5, and ch. 40, where the two principal hoards of these coins are described.

Serial no. and Findspot	Metal and size	Obverse	Reverse	Remarks
9. Dh. '15–1,597 East of U1	Æ 0·6	Similar	Similar	*A.S.R.* (1915), p. 31, no. 2
10. Sk. '29–2,286 Sq. 109·89' Stratum III	Æ 0·9	Spoked wheel	Swastika supported by two taurines. Kh. legend *Paṁcanekame*	*B.M. Cat. Anc. Ind.*, pp. 216–17 and Pl. XXXI, 13–16. Three specimens from Sk. Cf. p. 27, n. 3
11. Sk. '14– Sq. 78·53' Stratum III	Æ 0·7 × 0·65	Lotus tree in railing; small *chaitya* on each side	Square cross with *chaitya* above surmounted by crescent	*Ibid.* pp. CXXXV, 227 and Pl. XXXIII, 10–15. *A.S.R.* (1914), p. 28, no. 8. The tree in railing appears to be an abbreviated form of the 'Lotus tree of Life and Fortune'. Cf. pp. 758, 759
12. Sk. '14– Sq. 77·68' Stratum IV	Æ 0·6 × 0·75	Similar	Similar	*A.S.R. ibid.* no. 9
13. Sk. '17–184 Sq. 92·74' Stratum II	Æ 0·86 × 0·86	Lotus tree in railing	Square cross	Three specimens from Sk. Cf. p. 758 and n. 3
14. Sk. '26–3,702 Sq. 139·51' Stratum II	Æ 0·82 × 0·8	Similar	Defaced	*A.S.R.* (1914), Pl. XXVII, 8, 9
15. Sk. '27–29 Sq. 123·94' Stratum II	Æ 0·8 × 0·8	Similar	Similar	
16. Kn. Stūpa	Æ 0·55 × 0·5	Tree in railing; to l. seated figure facing tree; above, three-arched *chaitya* surmounted by crescent and taurine symbol; to r. standing figure with hands raised; and above, dagger-like object and swastika	Three-arched *chaitya* surmounted by crescent	*A.S.R.* (1914), p. 28, no. 6. *B.M. Cat. id.* p. 237 and Pl. XLV, 2
17. Sk. '28–1,228 Sq. 59·103' Stratum II	Æ 0·56	Similar. Indistinct	Blank (?)	*A.S.R.* (1928), p. 65, no. 1
18. Sk. '26–3,826 Sq. 89·52' Stratum II	Æ 0·7	Similar	Defaced	Cf. *B.M. Cat. id.* Pl. XV, 1 (Audumbara)
19. Sk. '14– Sq. 81·70' Stratum II	Æ 0·5 × 0·45	Three-arched *chaitya* surmounted by crescent; in left field, spear and flags symbol; below, swastika	Three-arched *chaitya* surmounted by crescent; in left field, shield (?) symbol	*B.M. Cat. id.* pp. 229–30 and Pl. XXXIV, 8–11; *A.S.R.* (1914), p. 28, no. 7
20. Sk. '13–2,163 Debris	Æ 0·59	Elephant to r.	*Chaitya* surmounted by crescent	*B.M. Cat. id.* p. 234 and Pl. XXXIV, 18, 19

21. Bm. '21–882 Sq. 54·112' Stratum II	Æ	0·52	Elephant to l.	Similar	*Ibid.*
22. Sk. '16–833 Sq. 59·54' Stratum III	Æ	0·42	Similar	Similar	From double coin. Cf. *B.M. Cat. Anc. Ind.* Pl. XII, 1, 2
23. Sk. '14–957 Sq. 47·79' Stratum II	Æ	0·62	Elephant to r.	Defaced	Four specimens from Sirkap
24. Sk. '12–48 Sq. 48·64' Stratum III	Æ	0·7	Elephant walking to l. Above, three-arched *chaitya* surmounted by crescent and cross	Square cross and three-arched *chaitya* surmounted by crescent	*A.S.R.* (1912), p. 45, no. 3. Seven specimens of this type from Sk. For a similar type on a square coin, cf. *B.M. Cat. id.* XXXIII, 9
25. Sk. '30–300 Sq. 49·87' Stratum VI	Æ	0·62 × 0·62	Elephant to l., with swastika and standard triangle below	Tree in railing with square cross, and uncertain objects to l.	*C.A.I.* Pl. I, 28
26. Sk. '30–223 Sq. 138·52' Stratum II	Æ	0·58 × 0·5	Elephant to r.	Tree in railing	*C.A.I.* Pl. XI, 13
27. Sk. '27–73 Trench B2 Stratum III	Æ	0·78 × 0·58	Elephant to l.	Lion standing to l.; *chaitya* in front	*B.M. Cat. id.* pp. 223, 224; Pl. XXXII, 17–22; *I.M. Cat.* p. 158
28. Sk. '29–2,768 Sq. 39·87' Stratum VI	Æ	0·9 × 0·75	Tusked elephant standing to r. Two-arched *chaitya* with crescent above	Lion to l.; swastika above; two-arched *chaitya* in front	*Ibid.*
29. Sk. '29–2,942 Sq. 28·89' Stratum VII	Æ	0·8 × 0·68	Similar	Similar	*Ibid.*
30. Sk. '29–3,172 Sq. 10·89' Stratum VI	Æ	0·88 × 0·68	Elephant standing to l.	Defaced	*Ibid.*
31. Sk. '14–2,494 Spoil earth	Æ	0·75 × 0·7	Elephant full-face, three-arched *chaitya* and square cross to l. Tree in railing to r.	Horse to l.; *chaitya* with crescent above. Legend defaced	*B.M. Cat. id.* pp. cxxxi–ii and Pl. XXXIV, 7; *C.A.I.* Pl. III, 5; *A.S.R.* (1914), p. 28, no. 10
32. Sk. '26–4,596 Sq. 177·29' Stratum III	Æ	0·7	Humped bull couchant to r.; taurine or triskel above	Blank	Unique. Two specimens from Sk.
33. Sk. '14–1,821 Sq. 41·72' Stratum II	Æ	0·6	Humped bull (?) standing to r.; taurine (?) above	Blank	Cf. *B.M. Cat. id.* Pl. XXXV, 13 (*b*)
34. Sk. '12–568 Near shrine I Stratum II	Æ	0·65	Couchant bull to l.; taurine above; swastika (?) below	Blank	*B.M. Cat. id.* Pl. XXXV, 13 (*a*); *A.S.R.* (1912), p. 45, no. 2. Seventeen specimens from Sk., eight from Bm. and one from Dh.

Serial no. and Findspot	Metal and Size	Obverse	Reverse	Remarks
35. Sk. '14–2,400 Spoil earth	Æ 0·65	Similar	Similar	*A.S.R.* (1914), p. 28, no. 2
36. Sk. '15–882 Sq. 156·102' Stratum II	Æ 0·55	Similar	Similar	*A.S.R.* (1915), p. 31, no. 1. Much defaced
37. Sk. '27–379 Trench D85 Stratum III	Æ 0·52	Couchant bull to l.	Indistinct	*A.S.R.* (1927), p. 61, no. 2. Cf. p. 757
38. Sk. '14– Sq. 51·76' Stratum II	Æ 0·7	Lion to l., incuse; indistinct object in front; swastika above	Lion to l.; indistinct	*A.S.R.* (1914), p. 28, no. 11. Cf. p. 757
		BACTRIAN AND INDIAN GREEKS. (Cf. pp. 27–44, 123–4, 763–9, 830–2, 835–7, 856–63)		
		DIODOTUS II(?)		
39. Bm. '13–1 Stratum I	*N* 0·7	Diademed head of king to r.	Zeus standing to l. and hurling thunderbolt; aegis on l. arm; underneath it, wreath and eagle. Gr. legend: ΒΑΣΙΛΕ-[ΩΣ] ΑΝΤΙΟΧ[ΟΥ]	This fine gold stater was found in a hoard with 160 punch-marked coins and several pieces of gold jewellery. Rapson identifies the head as that of Diodotus II, but the identity is uncertain. (*C.H.I.* I, Pl. II, 11). Cf. pp. 110–11, 763
		EUTHYDEMUS. (Cf. pp. 767, 857–8)		
40. Sk. '27–39 Trench D34 Stratum II	Æ 0·9	Bare head of bearded Heracles to r.	Horse prancing to r. Above: ΒΑΣΙΛΕΩΣ. Below: [Ε]Υ[Θ]-ΥΔΗΜΟΥ	*P.M. Cat.* Pl. I, 16; *A.S.R.* (1927), p. 61, no. 4
41. Sk. '19–11 Outside city wall	Æ 0·84	Similar	Similar	
		DEMETRIUS. (Cf. pp. 27–8, 763, 858)		
42. Bm. '21–157 Sq. 27·44' Stratum II	Æ 1·3	Buckler with Gorgon's head	Trident. Gr. legend: ΒΑΣΙΛ-ΕΩΣ ΔΗΜΗΤΡΙΟΥ. Monogram ⚹	*I.M. Cat.* Pl. I, 12
		AGATHOCLES. (Cf. pp. 29–30, 763, 767, 856 f.)		
43. Sk. '12–76 Stratum II	Æ 1 × 0·8	Six-arched *chaitya*. Kh. legend: *Akathukreyasa*	Tree in railing. Kh. legend: *hitaja(same)* or, more probably, *Hirañasame*	Quarter circle in shape. Cf. *P.M. Cat.* no. 52 and *B.M. Cat.Anc.Ind.* pp. cxxx–cxxxii; *A.S.R.* (1912), p. 45, no. 5. Four specimens from Sk.
44. Sk. '29–3,049 Sq. 11·101' Stratum V	Æ 0·73 × 0·63	Similar	Similar	Rectangular. *A.S.R.* (1929), p. 86, no. 4
45. Sk. '28–2,870 Sq. 11·87'	Æ 0·8 × 0·62	Similar	Similar	Same shape as no. 43. *A.S.R.* (1928), p. 65, no. 3

46. Sk. '28–2,256 Sq. 16·88′ Stratum IV	Æ 0·5	*Chaitya* indistinct	Conventionalised lotus plant. Legend as in no. 43	Three specimens from Sirkap. *P.M. Cat.* no. 51; *B.M. Cat. ibid.* These may be autonomous coins of Taxila, copied by Agathocles
47. Sk. '22–414 Sq. 11·90′ Stratum II	Æ 0·68	Six-arched *chaitya*	Conventionalised lotus plant. Legend as in no. 43	
48. Sk. '24–1,023 Sq. 44·44′ Stratum III	AR 0·62	Similar	Similar	
		APOLLODOTUS I. (Cf. pp. 30, 31, 763, 767, 859, 861)		
49. Sk. '29–1,447 Sq. 11·99′ Stratum IV	Æ 0·6 × 0·58	Humped bull to r. in beaded square. No legend	Tripod-lebes in beaded square. No legend	Possibly referable to Apollodotus II (nos. 87–91). Eleven specimens from Sk. Cf. *B.M. Cat. of Greek and Scythic Coins*, II, IX, 13
50. Sk. '16–477 Sq. 5·70′ Stratum III	Æ 0·58 × 0·52	Apollo to r.	Elephant to r.	Cf. *Num. Chron.* (1940), p. 111. Whitehead attributes to Zoilus II (Soter). See nos. 105–8 *infra*
		MENANDER.[1] (Cf. pp. 30, 31–4, 292, 763, 765, 767, 859)		
51. Sk. '15–148 Sq. 86·73′ Stratum III	Æ 0·65 × 0·65	Elephant's head with bell round neck. Gr. legend: ΒΑΣΙΛΕΩΣ ΣΩΤΗΡΟΣ ΜΕΝΑΝΔΡΟΥ	Club of Heracles. Kh. legend: (*Maharajasa tratarasa*) *Menadrasa*. To r. monogram no. 70 (*P.M. Cat.*)	*P.M. Cat.* Pl. VI, 511; *A.S.R.* (1915), p. 31, no. 5. Twenty-three specimens from Sk.; one from Dh. Cf. p. 32 and n. 2
52. Sk. '26–1,694 Sq. 124·64′ Stratum II	Æ 0·63	Bust of king to r. diademed. Gr. legend as above	Pallas l. holding aegis in l. hand and hurling thunderbolt with r. hand; monogram ₭	Three specimens from Sk. Cf. p. 31 and n. 3
53. Sk. '29–2,194 Sq. 112·94′ Stratum II	Æ 0·95 × 0·94	Helmeted bust of Pallas to r. Gr. legend as above	Buckler with Gorgon's head. Legend and monogram as on no. 51	The bust appears to be that of Pallas rather than of the king, as stated in *P.M. Cat.* p. 60, nos. 495–9. See *B.M. Cat. of Greek and Scythic Coins*, p. 49; *A.S.R.* (1929), p. 87, no. 14. Cf. p. 31 and nn. 4, 5
54. Sk. '29–2,576 Sq. 11·98′ Stratum V	Æ 0·8 × 0·74	Similar	Defaced	Cf. *A.S.R. ibid.* no. 15
55. Dh. '13–1,998 Debris of main stūpa	AR 0·63	Helmeted bust of young king to r. Gr. legend as above	Pallas l., holding shield in l. hand and hurling thunderbolt with r. Monogram no. 3 (*P.M. Cat.*) on r.	*B.M. Cat. id.* Pl. XI, no. 9. Cf p. 31 and n. 3

[1] For another rare coin of Menander ('Wheel and palm' type) not included in this List, see *A.S.R.* (1928–9), p. 65, no. 4, and *B.M. Cat.* Pl. XII, 7. It was found in Sirkap, Block D′, sq. 57·95′, stratum I (Reg. no. 1,085).

Serial no. and Findspot	Metal and Size	Obverse	Reverse	Remarks
56. Sk. '12–604 Sq. 109·63' Stratum II	Ꭱ 0·64	Similar but poorer execution	Similar	*B.M. Cat.* Pl. XI, 9
57. Sk. '16–530 Sq. 15·74' Stratum II	Ꭱ 0·63	Diademed bust of king wearing *aegis* (?) and thrusting with javelin. Gr. legend as above	Pallas to r., holding *aegis* on l. arm and hurling thunderbolt with r. Kh. legend as above	*Ibid.* Pl. XI, 11
		STRATO I. (Cf. pp. 34–5, 763, 767, 859)		
58. Sk. '24–1,045 Sq. 50·65' Stratum III	Ꭱ 1·08	Bust of Apollo to r. laureate; hair in queue. Gr. legend: ΒΑΣΙΛΕΩΣ ΕΠΙΦΑΝΟΥΣ ΣΩΤΗΡΟΣ ΣΤΡΑΤΩΝΟΣ	Bow and quiver with strap. Kh. legend: *Maharajasa pracachasa tratarasa Stratasa*	*Ibid.* Pl. XI, 2
59. Sk. '26–879 Sq. 138·52' Stratum II	Ꭱ 0·8 × 0·75	Bust of Heracles r. with club, bound with *taenia*, over shoulder. Gr. legend: ΒΑΣΙΛΕΩΣ ΣΩΤΗΡΟΣ [ΣΤΡΑΤΩΝΟΣ]	Nike r. holding out wreath; monogram Σ. Kh. legend: *Maharajasa tratarasa Stratasa*	*P.M. Cat.* Pl. V, 367; *I.M. Cat.* Pl. IV, 13. Cf. p. 35 and n. 1
60. Sk. '28–2,869 Sq. 16·89' Stratum III	Ꭱ 0·8 × 0·8	Similar	Similar	*A.S.R.* (1928), p. 65, no. 9
61. Sk. '28–438 Sq. 13·88' Stratum IV	Ꭱ 0·9 × 0·74	Bust of Apollo (?) to r.; hair in queue. Legend effaced	Nike to r. Legend as above. Monogram to l. ⩘; to r. Σ	The bust appears to be that of Apollo (with queue) rather than of Heracles, as stated in *A.S.R.* (1928), p. 65, no. 8
62. Sk. '29–3,073 Sq. 27·88' Stratum VII	Æ 0·75 × 0·7	Diademed bust of Heracles. Legend effaced	Similar	*A.S.R.* (1929), p. 87, no. 13
63. Sk. '28–515 Sq. 19·85' Stratum III	Lead 0·85	Apollo to r. holding bow (?) in both hands. Much defaced	Tripod-lebes, much defaced	Cf. *P.M. Cat.* Pl. VIII, 647, but perhaps attributable to Strato II
64. Sk. '28–1,982 Sq. 107·78' Stratum II	Lead 0·7	Similar	Similar	
		EUCRATIDES. (Cf. pp. 30–1, 763, 767, 859)		
65. Sk. '13–1,040 Sq. 72·58' Stratum II	Æ 1 × 0·9	Bust of king to r. diademed and helmeted. Gr. legend: ΒΑΣΙΛΕΩΣ ΜΕΓΑΛΟΥ ΕΥΚΡΑΤΙΔΟΥ	Mounted Dioscuri charging to r. Kh. legend *Maharajasa Evukratitasa*	Three specimens from Sk. *P.M. Cat.* Pl. III, 108
66. Sk. '14–2,077 Sq. 58·74' Stratum III	Æ 0·62	Bust of king without helmet. Same legend as above	Palms and *pilei* of the Dioscuri. Legend indistinct	*Ibid.* Pl. III, 132

			HELIOCLES. (Cf. pp. 35, 292, 763, 767)		
67. Dh. '30–1 Surface	Æ	1·05	Diademed bust of king to r.	Horse walking to l. Gk. legend indistinct	*Ibid.* Pl. III, 139. Barbarous imitation
68. Sk. '15–1,070 Sq. 88·72' Stratum III	Æ	0·8 × 0·75	Diademed bust of king (?) to r. Gk. legend: [Β]ΑΣΙΛΕΩΣ ΔΙΚΑΙΟΥ ΗΛΙΟΚΛΕΟΥ[Σ]	Elephant standing to l. Kh. legend: *Maharajasa dhramikasa Heliyakreyasa.* In exergue, monogram Σ ·	*Ibid.* III, 148; *A.S.R.* (1915), p. 31, no. 3. Six specimens from Sk.
69. Sk. '29–2,733 Sq. 50·91' Stratum IV	Æ	0·8 × 0·8	Similar	Similar	*A.S.R.* (1929), p. 86, no. 5
70. Sk. '29–2,866 Sq. 37·89' Stratum VI	Æ	0·85 × 0·8	Elephant walking to l. Legend as above	Indian humped bull to r. Kh. legend: . . . *sa dhramikasa*	*Ibid.* no. 7; *P.M. Cat.* Pl. III, 149. Two specimens from Sk.
			LYSIAS. (Cf. pp. 35, 36, 761, 763)		
71. Sk. '29–2,576 Sq. 11·98' Stratum V	Æ	0·9	Bust of bearded Heracles to r., club over shoulder. In poor condition	Elephant walking to r. Legend: (*Lisi*)*kasa*	*A.S.R. ibid.* no. 8; *B.M. Cat.* Pl. VIII, 8. One round and two square specimens of this type from Sk.
			ANTIALCIDAS. (Cf. pp. 37–9, 292, 763, 766, 767)		
72. Sk. '26–3,803 Sq. 85·45' Stratum IV	Æ	0·7 × 0·68	Bust of Zeus to r. bare headed; thunderbolt over l. shoulder. Gr. legend: ΒΑΣΙΛΕΩΣ ΝΙΚΗΦΟΡΟΥ ΑΝΤΙΑΛΚΙΔΟΥ	Laureate *pilei* of the Dioscuri surmounted by stars; between them, palms. Kh. legend: . . . *maharajasa jayadharasa* . . .	*B.M. Cat.* Pl. VIII, 2. Four specimens from Sk., one from Dh., one from Lc. Cf. p. 389
73. Sk. '29–2,939 Sq. 38·88' Stratum VII	Æ	0·85	Undraped bust of Zeus to r., hurling thunderbolt. Legend effaced	Laureate *pilei* and palms of the Dioscuri. Legend effaced	*A.S.R.* (1929), p. 87, no. 10; *P.M. Cat.* Pl. IV, 193
74. Sk. '29–2,764 Sq. 38·87' Stratum VI	Æ	0·77 × 0·7	Diademed bust of king to r. Legend effaced on both sides	Elephant standing to r. holding wreath in its upraised trunk	*A.S.R. ibid.* no. 9; *P.M. Cat.* Pl. IV, 212. Cf. p. 79 and n. 3
			ARCHEBIUS. (Cf. pp. 35, 39, 763, 767–8)		
75. Sk. '14–12 Sq. 55·77' Stratum III	Æ	1	Nike l. holding wreath and palm. Gr. legend. ΒΑΣΙΛΕΩΣ ΔΙΚΑΙΟΥ ΝΙΚΗΦΟΡΟΥ. Below: ΑΡΧΕΒΙΟΥ	Owl to r.; in r. field monogram ₦. Kh. legend: (*Maha*)*raja*-(*sa dhramikasa*) *jayadharasa Arkhebiyasa*	*A.S.R.* (1914), p. 29, no. 12; *B.M. Cat.* Pl. IX, 6
76. Sk. '26–3,807 Sq. 84·45' Stratum V	Æ	1	Bust of Zeus (?) to r.	Laureate *pilei* of the Dioscuri surmounted by stars; palms between. Kh. legend . . . *jay-adha* . . .	An overstrike by dies of type *P.M. Cat.* Pl. IV, 230 on a piece of Strato. *B.M. Cat.* Pl. XI, 2
77. Sk. '27–325, *a* Trench D124 Stratum II	Æ	1 × 0·93	Diademed bust of Zeus to r., sceptre over l. shoulder. Gk. legend as on no. 75	Palms and *pilei* of the Dioscuri. Kh. legend *Maharajasa dhramikasa jayadharasa Arkhebiyasa*	*P.M. Cat.* Pl. IV, 230; *A.S.R.* (1927), p. 61, no. 5

Serial no. and Findspot	Metal and Size	Obverse	Reverse	Remarks
78. Sk. '30–322 Sq. 136·54′ Stratum II	Æ 0·92 × 0·9	Similar	Similar	*P.M. Cat.* Pl. IV, 230; *A.S.R.* (1927), p. 61, no. 5
79. Sk. '29–3,156 Sq. 14·87′ Stratum V	Æ 0·94 × 0·88	Elephant to r. Gk. legend as on. no. 75	Owl to r. Monogram as on no. 75. Kh. legend as on no. 77	*B.M. Cat.* Pl. IX, 7; *A.S.R.* (1929), p. 87, no. 11. Three specimens from Sk.
80. Sk. '30–110 Block 2 Spoil earth	Æ 1 × 0·9	Similar	Similar	
EPANDER. (Cf. pp. 34, 763, 768)				
81. Sk. '29–1,750 Sq. 58·90′ Stratum III	Æ 0·84 × 0·76	Winged Nike to r. Gk. legend defaced	Humped bull to r. Kh. legend: *(Ma)ha(rajasa) jayadharasa Epadra(sa)*	*B.M. Cat.* Pl. XII, 8; *P.M. Cat.* Pl. VI, 517; *A.S.R.* (1929), p. 87, no. 16
PHILOXENUS. (Cf. pp. 34, 763, 768)				
82. Sk. '27–65 Sq. 108·95′ Stratum I	Æ 0·83 × 0·85	Demeter standing to l. with r. hand raised and cornucopiae in l. Gk. legend: ΒΑΣΙΛΕΩΣ ΑΝΙ[ΚΗΤΟΥ ΦΙΛΟ]ΞΕΝΟΥ	Humped bull to r. Kh. legend: *Maharajasa Apatihatasa Phila[sinasa]*	*B.M. Cat.* Pl. XIII, 10; *P.M. Cat.* Pl. VII, 590; *A.S.R.* (1927), p. 65, no. 2. Thirteen specimens of this type from Sk.
83. Sk. '28–2,740 Sq. 175·37′ Stratum IV	Æ 0·8 × 0·8	Similar	Similar	*A.S.R.* (1928), p. 65, no. 5
84. Sk. '29–1,626 Sq. 50·86′ Stratum IV	Æ 0·8 × 0·8	Similar	Similar	*Ibid.* (1929), p. 88, no. 18
85. Sk. '29–2,863 Sq. 31·91′ Stratum VI	Æ 0·75 × 0·75	Similar	Similar	*Ibid.* no. 19
THEOPHILUS. (Cf. pp. 763, 768)				
86. Sk. '15–855 Sq. 21·67′ Stratum II	Æ 0·8 × 0·75	Bust of Heracles to r. with club over l. shoulder. Gk. legend: ΒΑΣΙΛΕΩΣ ΔΙΚΑΙΟΥ ΘΕΟΦΙΛΟΥ	Cornucopiae. Kh. legend: *Maharajasa dhramiasa Theuphilasa*; to l., monogram indistinct	*B.M. Cat.* Pl. XXXI, 4; *P.M. Cat.* Pl. VIII, 632; *A.S.R.* (1915), p. 32, no. 6
APOLLODOTUS II. (See also no. 49 and cf. pp. 292, 764, 768, 859)				
87. Sk. '13–342 Sq. 104·61′ Stratum II	Æ 0·8	Apollo seated to r. on throne, holding out bow. Gk. legend: ΒΑΣΙΛΕΩΣ ΣΩΤΗΡΟΣ ΑΠΟΛΛΟΔΟΤΟΥ	Tripod-lebes in beaded square. Monogram in r. field. Traces of Kh. legend	Cf. *B.M. Cat.* p. 167; *A.S.R.* (1912), p. 45, no. 6; Cunningham, Pl. IX, 12 *Coins of Alexander's Successors in the East*

88. Sk. '14–13 Sq. 49·73′ Stratum IV	Æ 0·9 × 0·6	Similar	Tripod-lebes in frame. In r. field, monogram ⴲ, in l. field, Kh. *sa*. Kh. legend: *Maharaja(sa tratarasa A)paladatasa*	*A.S.R.* (1914), p. 29, no. 13
89. Sk. '14– Sq. 74·65′ Stratum III	Æ 0·8 × 0·8	Apollo standing to r. holding out an arrow in both hands. Gk. legend as on no. 87	Tripod-lebes in beaded square; in r. field, monogram ꟗ; Kh. legend: *Maharajasa trata(rasa) Apalada(tasa)*	*A.S.R.* (1914), p. 29, no. 14. Twenty-four specimens from Sk.
90. Sk. '26–2,021 Sq. 127·49′ Stratum II	Æ 0·75 × 0·58	Similar, but more barbarous	Similar, but without beaded square	Cf. *I.M. Cat.* Pl. IV, 8
91. Sk. '15–971 Sq. 89·72′ Stratum II	Æ 1 × 0·9	Apollo standing r. helmeted; clad in *chlamys* and boots and holding out an arrow in both hands; quiver at his back. Gk. legend as above	Tripod-lebes. Kh. legend as above. In r. field, Kh. *ge*; in l. field, Kh. *ji*	*P.M. Cat.* Pl. V, 344. *A.S.R.* (1915), p. 31, no. 4

HIPPOSTRATUS. (Cf. p. 768)

92. Sk. '29–2,898 Sq. 46·90′ Stratum V	Æ 1·22	Apollo to r. holding arrow in both hands. Gr. legend: ΒΑΣΙΛ[ΕΩΣ ΣΩ]ΤΗΡΟΣ ΙΠΠΟΣΤΡΑΤΟΥ	Tripod-lebes. Kh. legend: *Mahara(jasa tra)tarasa Hipu(strata)sa*. Monogram l. indistinct; perhaps same as *P.M. Cat.* no. 79	*B.M. Cat.* Pl. XIV, 7; *P.M. Cat.* Pl. VIII, 628; *A.S.R.* (1929), p. 88, no. 20. Two circular and four square specimens from Sk.

TELEPHUS. (Cf. pp. 763, 768)

93. Sk. '12–96 Sq. 67·62′ Stratum IV	Æ 0·9	Zeus to l. on throne with r. hand advanced and long sceptre in l. Gk. legend: ΒΑΣΙΛΕΩΣ ΕΥΕΡΓΕΤΟΥ ΤΗΛΕΦΟΥ	Draped male figure walking to r. with r. hand outstretched and a long spear on l. shoulder. Monogram in r. field same as *P.M. Cat.* no. 82. Kh. legend: *Maharajasa kalanakramasa. (Te)li(phasa)*	*P.M. Cat.* Pl. VIII, 640; *A.S.R.* (1912), p. 46, no. 7
94. Sk. '29–2,680 Sq. 11·97′ Stratum V	Æ 0·7	*Yaksha* holding in each hand lotus stalk which develops from his own serpent-like legs. Gr. legend as above	God and goddess (?) standing to front. Kh. legend and monogram as above	*B.M. Cat.* p. 171 and Pl. XXXII, 7; *P.M. Cat.* p. 87 and Pls. IX, X; *A.S.R.* (1929), p. 88, no. 21. *Yakshas* are commonly represented in early Indian art with the 'Lotus plant of Life and Fortune' issuing from their mouths, navels, etc. Cf. Marshall and Foucher, *Monuments of Sāñchī*, pp. 142–5

Serial no. and Findspot	Metal and Size	Obverse	Reverse	Remarks
HERMAEUS. (Cf. pp. 48, 292, 763–4, 768)				
95. Sk. '12–822 Sq. 99·64' Stratum III	Æ 0·62	Bust of king to r. Legend obliterated	Winged Nike to l. holding wreath in extended r. hand and palm in l. Monogram in r. field as *P.M. Cat.* no. 94. Kh. legend illegible	*P.M. Cat.* Pl. IX, 682; *A.S.R.* (1912), p. 46, no. 8. 261 specimens from Sk. and five from Dh. Probably Śaka or Parthian imitations
96. Sk. '14– Sq. 52·77' Stratum II	Æ 0·65	Similar	Similar. Legend: *Mahara(jasa)...Herama(ya)sa*	*A.S.R.* (1914), p. 29, no. 15
97. Sk. '15–978 Sq. 88·71' Stratum II	Æ 0·65	Similar	Similar	*Ibid.* (1915), p. 32, no. 7
98. Sk. '15–672 Sq. 125·68' Stratum II	Æ 0·7	Similar	Similar	*Ibid.* no. 8
99. Sk. '15–651 Sq. 125·68' Stratum II	Æ 0·65	Similar	Similar	*Ibid.* no. 9
100. Sk. '28–820 Sq. 64·106' Stratum II	Æ 0·63	Similar	Winged Nike to r.	*Ibid.* (1928), p. 65, no. 10; *P.M. Cat.* p. 85, no. 692. Winged Nike to r. rare in Taxila collection, not found in I.M. and B.M. Collections
101. Sk. '28–1,402 Sq. 61·96' Stratum II	Æ 0·85	Bust of king (double impression)	Winged Nike to l.	*P.M. Cat.* Pl. IX, 682
102. Sk. '13–2,174 Sq. 54·59' Stratum II	Æ 0·82	Crude bust of king to r. Degenerate. Gr. legend	Zeus seated on throne. Kh. legend: *ma.he ma*	
103. Sk. '16–783 Spoil earth	Æ 0·8	Bust of king to l. Legend defaced	Zeus seated on throne to l.	
DIONYSIUS. (Cf. pp. 704, 768)				
104. Sk. '14–281 Sq. 149·64' Stratum II	Æ 0·41 × 0·4	Apollo r. in incuse square, holding arrow(?) in both hands. To l. monogram [illegible]	Royal diadem. Legend incomplete	*B.M. Cat.* Pl. XXXI, 14; *P.M. Cat.* Pl. VII, 521
ZOILUS II. (See also no. 50 and cf. pp. 292, 764–5, 768, 859 f.)				
105. Sk. '29–2,950 Sq. 45·93' Stratum IV	Æ 0·66	Elephant moving to r. in bead-and-reel border. No legend	Tripod-lebes. Kh. legend: *(Maharajasa tratarasa) Jhoilasa*. To r., Kh. *a*; to l., *ra*	This may be referable to Zoilus I. *P.M. Cat.* Pl. VII, no. 546; *A.S.R.* (1929), p. 88, no. 17. Two specimens from Sk.

		elephant. Gr. legend effaced		
107. Dh. '12–1,205 H 1. 8 ft. 8 in. below surface	Æ 0·63	Diademed bust of king to r. Gr. legend: ΒΑΣΙΛΕΩΣ ΣΩΤΗΡΟΣ ΖΩΙΛΟΥ	Pallas to l. with aegis and thunderbolt. To l., trident-axe. To r., monogram ⟨monogram⟩, above; Kh. *ji* below. Kh. legend: *Maharajasa tratarasa Jhoilasa*	*B.M. Cat.* Pl. XII, 11; *P.M. Cat.* Pl. VII, 534. Twenty-five specimens from Dh., building H. Cf. p. 248
108. Ditto	Æ 0·64	Similar	Similar	

INDIAN RULERS

RĀJANYA

109. Sk. '12–148 Sq. 98·65' Stratum II	Æ 0·61	Standing deity of primitive type. Br. legend: (*Rajana*)-*janapa*(*dasa*)	Humped bull in rayed circle	*B.M. Cat. of Ancient Indian Coins*, pp. 210–11

AMOGHABHUTI

110. Sk. '12–132 Sq. 14·67' Stratum II	Æ 0·75	Deer to r.; female fig. to r., holding flower in uplifted r. hand. Above back f deer, umbrella in railing; 'shield' symbol above horns. Br. legend effaced	Six-arched *chaitya* with umbrella; to r., tree in railing; to l., swastika and victory symbol; above *triratna*	*Ibid.* Pl. XXII, 14–16

ŚAKA AND PARTHIAN RULERS. (Cf. pp. 44–66, 130–2, 210–12, 292, 769–85)

MAUES. (Cf. pp. 45–8, 130, 292, 771–2, 780, 782)

111. Sk. '12–584 Sq. 54–65' Stratum IV	Æ 0·9	Heracles facing with left hand holding club and lion's skin. Gr. legend: ΒΑΣΙΛΕΩΣ ΒΑΣΙΛΕΩΝ ΜΕΓΑΛΟΥ ΜΑΥΟΥ	Maneless lion to l. Monogram in l. field = *P.M. Cat.* no. 2 (Indo-Scythian). Kh. legend: (*Rajati*)*rajasa mahatasa Moasa*	*B.M. Cat.* Pl. XVI, 5; *A.S.R.* (1912), p. 46, no. 11
112. Dh. '13–1,226 D 9. 5 ft. below surface	Æ 0·9	Zeus laureate enthroned to l. with sceptre in l. hand; r. hand extended towards a small figure with head framed in thunderbolt (?). Same legend	City goddess facing, wearing turreted crown and holding sceptre in l. hand and veil in r. Monogram ⟨monogram⟩ in l. field. Same legend as above	*B.M. Cat.* Pl. XVI, 9; *P.M. Cat.* Pl. X, 15; *A.S.R.* (1912), p. 46, no. 12
113. Sk. '12–1,061 Sq. 89·66' Stratum IV	Æ 0·87	Zeus standing to l. with r. hand advanced and sceptre in l. Same legend	Male deity to front wearing pointed cap. Same monogram, slightly varied, in l. field. Same legend	*P.M. Cat.* Pl. X, 16; *A.S.R.* (1912), p. 47, no. 13. Two specimens from Sk.
114. Sk. '12–577 Sq. 94·59' Stratum IV	Æ 0·9	Poseidon standing to front with r. foot placed on shoulder of River-god; r. hand hurls thunderbolt at a small figure to r. Trident in l. Gr. legend as above	Female figure (*yakshī*?) standing to front between vines holding their stems. Monogram indistinct. Most of Kh. legend defaced	*P.M. Cat.* p. 101, no. 23; *A.S.R.* (1912), p. 47, no. 14; Six specimens from Sk.

Serial no. and Findspot	Metal and Size	Obverse	Reverse	Remarks
115. Sk. '28–2,672 Sq. 174·38′ Stratum IV	Æ 0·9 × 0·85	Poseidon striding l. and hurling thunderbolt to r. Beside him River-god (Nāga) leaping up and clinging to something in his l. hand. Legend as above	Similar	*A.S.R.* (1928), p. 65, no. 13; *B.M. Cat.* Pl. XVII, 2. Cf. p. 47 and n. 4
116. Sk. '12–623 Sq. 98·70′ Stratum IV	Æ 0·9	Similar	Similar. Monogram no. 1 (*P.M. Cat.*) in l. field	*A.S.R.* (1912), p. 47, no. 15
117. Sk. '14– Sq. 77·66′ Stratum IV	Æ 0·95 × 0·9	Poseidon standing to front, r. foot on shoulder of River-god; r. hand on knee; trident in l. hand. Gr. legend as above	Similar	*B.M. Cat.* Pl. XVII, 1; *A.S.R.* (1914), p. 29, no. 17. Seventeen specimens from Sk.
118. Sk. '13–211 Sq. 83·63′ Stratum II	Æ 1·1	King r. on horseback; whip over shoulder; r. hand advanced. Gr. legend as above	Pallas (?) striding r. with flying draperies; r. hand advanced; spear and shield in l. Kh. legend as no. 111. In r. upper field, Kh. *dami*	*B.M. Cat.* Pl. XVI, 6; *P.M. Cat.* p. 102, 28; *A.S.R. ibid.* no. 16
119. Sk. '27–384 Trench D 66 Stratum II	Æ 0·98 × 0·98	Similar	Similar	·*A.S.R.* (1927), p. 61, no. 6
120. Sk. '14–2,286 Sq. 57·73′ Stratum IV	Æ 0·65 × 0·55	Apollo standing to front with arrow in r. hand and bow in l. Gr. legend: ΒΑΣΙΛΕΩΣ... ΜΑΥΟΥ	Within beaded square, a tripod-lebes. Kh. legend on three sides: *Maharajasa Moasa*	*B.M. Cat.* Pl. XVII, 7; *P.M. Cat.* Pl. X, 18; *A.S.R.* (1914), p. 29, no. 16. Fifteen specimens from Sk., one from Lc. Cf. p. 388
121. Sk. '26–2,028 Sq. 112·50′ Stratum II	Æ 0·58 × 0·58	Similar	Similar	
122. Sk. '27–291 Trench D 27 Stratum III	Æ 0·61 × 0·61	Similar	Similar	*A.S.R.* (1927), p. 61, no. 7
123. Sk. '14–912 Sq. 75·72′ Stratum III	Æ 0·8 × 0·75	Horse to l. Gr. legend: ΒΑΣΙΛΕΩΣ ΜΑΥΟΥ	Design defaced; probably bow-in-case. Kh. legend defaced. Monogram no. 2 (*P.M. Cat.*) to r.	Horse to l. on this coin is unique. In other known specimens it faces r., as in following specimen. *A.S.R.* (1914), p. 30, no. 18
124. Sk. '14–353 Sq. 153·55′ Stratum II	Æ 0·65 × 0·65	Horse to r. Gr. legend defaced	Bow-in-case. In l. field, monogram as above. Kh. legend: ...*Maharajasa Moa(sa)*	*P.M. Cat.* Pl. X, 35; *A.S.R. ibid.* no. 19
125. Sk. '29–2,784 Sq. 52·87′ Stratum V	Æ 0·94 × 0·94	In beaded square, elephant to r. holding wreath in uplifted trunk. Gr. legend as on no. 111	Humped bull to r.; legend illegible	*B.M. Cat.* Pl. XVII, 6; *P.M. Cat.* Pl. X, 32; *A.S.R.* (1929), p. 88, no. 22. Three specimens from Sk.

126.	Sk. '28-684 Sq. 14·92' Stratum V	Æ 0·7	Zeus to l.	Nike to r.	Same type as on the silver didrachms and hemidrachms illustrated in *P.M. Cat.* Pl. x, 1–3
127.	Sk. '29-350 Sq. 51·90' Stratum II	Æ 0·7 × 0·62	Male deity striding to l. with flying draperies, holding club in r. hand and spear (?) in l. Same Gr. legend as on no. 111	Goddess to r. with flowing draperies; damaged	*P.M. Cat.* Pl. x, 25; *A.S.R.* (1929), p. 88, no. 23. Six specimens from Sk. Possibly of Azes I
128.	Sk. '28-2,271 Sq. 119·75' Stratum II	Æ 0·7 × 0·64	Similar	Similar. Monogram no. 29 (*P.M. Cat.*) to r.	*A.S.R.* (1928), p. 65, no. 11
129.	Sk. '29-3,167 Sq. 13·92' Stratum VI	Æ 1	Artemis radiate to r., with veil floating round her head. Legend effaced	Humped bull to l. Kh. legend: *Rajati(rajasa maha)tasa Moasa*	*P.M. Cat.* Pl. x, 10; *A.S.R.* (1929), p. 89, no. 24. Ten specimens from Sk.
130.	Sk. '29-2,765 Sq. 37·87' Stratum VI	Æ 1·1	Similar	Similar	*A.S.R. ibid.* no. 25
131.	Sk. '24-206 Sq. 39·49' Stratum II	Æ 0·84 × 0·75	In beaded square, elephant to r. with wreath in upraised trunk. Gr. legend as on no. 111	In beaded square, king seated cross-legged on throne holding sword across his middle	*B.M. Cat.* Pl. XVII, 5; *P.M. Cat.* Pl. x, 31. Cf. the copper piece of Azes I (*B.M. Cat.* Pl. XIX, 1) where the sword is partly drawn from its sheath. Cf. p. 79 and n. 1
			VONONES WITH ŚPALAHORES. (Cf. pp. 49–51, 131, 292, 775, 779, 782)		
132.	Sk. '26-3,611 Sq. 145·62' Stratum II	Æ 0·88 × 0·65	Heracles standing to front crowning himself with r. hand and holding club and lion skin in l. hand. Gr. legend: [ΒΑΣΙΛΕΩΣ ΒΑΣΙΛΕΩΝ ΜΕΓ-Α]ΛΟΥ ΟΝΩ[ΝΟΥ]	Pallas helmeted to front, with r. hand raised holding wreath; shield on l. arm and spear. Monogram ⊞. Kh. legend: *Maharaja(bhrata dhramikasa) Śpalahora(sa)*	*B.M. Cat.* Pl. XXI, 9; *P.M. Cat.* Pl. XIV, 379. Twenty-eight specimens from Sk.; one from Dh.
133.	Sk. '26-3,868 Sq. 90·49' Stratum IV	Æ 0·85 × 0·7	Similar; much defaced	Similar	
			ŚPALYRIS WITH ŚPALAGADAMES. (Cf. pp. 48–51, 131, 775, 779, 782)		
134.	Sk. '26-1,464 Sq. 148·51' Stratum II	Æ 0·88 × 0·85	King on horseback to r. in beaded square. Gr. legend: ΣΠΑΛΥΡΙΟΣ ΔΙΚΑΙΟΥ ΑΔΕΛ-ΦΟΥ ΤΟΥ ΒΑΣΙΛΕΩΣ	Naked Heracles diademed seated l. on rock, on which his l. hand rests; r. hand supports club on leg. Monogram as in *B.M. Cat.* p. 100, no. 1. Kh. legend: *(Śpa)lahora putrasa (dhra)mia(sa) Śpalagadamasa*	*B.M. Cat.* Pl. XXI, 12; *P.M. Cat.* Pl. XIV, 386. Śpalyris is thought to be the Gr. form of Śpalahores. Four specimens from Sk.
135.	Sk. '29-2,691 Sq. 14·97' Stratum V	Æ 0·87 × 0·83	Similar	Similar	*A.S.R.* (1929), p. 89, no. 29

144. Sk. '27–147 Sq. 154·102′ Stratum II	Æ	1 × 1	Similar	Similar	*A.S.R.* (1928), p. 65, no. 4
145. Sk. '14–2,381 Sq. 21·68′ Stratum I	Æ	0·65	Maneless lion walking to r.; in upper field, indistinct Kh. letter. Gr. legend illegible	Demeter with cornucopia standing to l.; to r., Kh. *su*. Kh. legend illegible	*B.M. Cat.* Pl. XIX, 4; *P.M. Cat.* Pl. XII, 222; *A.S.R.* (1914), p. 30, no. 22. Eighty-seven specimens from Sk. Probably struck by Azes II
146. Sk. '26–3,323 Sq. 87·52′ Stratum II	AR	0·68	Zeus standing with r. hand extended. Gr. legend illegible	Winged Nike standing r. holding out wreath and palm with fillet. Kh. legend illegible	*B.M. Cat.* Pl. XVIII, 12; *P.M. Cat.* Pl. XI, 187. Two specimens from Sk. Cf. p. 131 and n. 1
147. Sk. '26–4,591 Sq. 177·29′ Stratum III	Æ	0·9 × 0·8	Hephaistos standing to front. To l., Kh. *se*. Gr. legend as on no. 137	Lion to r. Above, indistinct monogram. Kh. legend: *Maharajasa rajarajasa* (*Ayasa*)	*P.M. Cat.* p. 130, no. 309
148. Sk. '26–1,192 Sq. 136·47′ Stratum IV	Æ	0·61	Humped bull walking to r. Gr. legend as on no. 137	Maneless lion standing to r. Above, monogram as in *B.M. Cat.* p. 86, nos. 141, 146 (rev.). Kh. legend: *Maha*(*rajasa mahatasa*) *Ayasa*	*B.M. Cat.* Pl. XIX, 6; *P.M. Cat.* Pl. XII, 264. Forty-six specimens from Sk.
149. Sk. '27–62 Sq. 69·119′ Stratum II	Æ	0·48	King r. on horseback. Gr. legend illegible	Zeus brandishing thunderbolt with r. hand. Monograms to r. and l. uncertain. Kh. legend illegible	Cf. silver coin, *P.M. Cat.* Pl. XI, 40; *A.S.R.* (1927), p. 65, no. 3
150. Sk. '27–300, *a* Trench D 128 Stratum II	Æ	0·65	King r. on horseback with r. arm extended. Gr. legend as on no. 137	Pallas standing to front with shield and spear on l. arm; crowns herself with r. hand. Kh. *sashi* to l.; monogram no. 24 (*P.M. Cat.*) to r. Kh. legend as on no. 143	Cf. *B.M. Cat.* pp. 78–80 and Pl. XVIII, 4, 5; *A.S.R.* (1927), p. 61, no. 9. Seven specimens from Sk.
151. Sk. '30–285 Sq. 45·88′ Stratum V	Æ	0·64	Similar	Similar but Kh *a* to l. and monogram X to r.	
152. Sk. '27–478 Sq. 45·92′ Stratum II	Æ	1 × 1	Demeter on throne holding cornucopiae on l. arm. Gr. legend as above	Hermes to l., r. arm extended. Kh. legend as above	*B.M. Cat.* Pl. XIX, 2; *P.M. Cat.* Pl. XI, 217; *A.S.R.* (1927), p. 65, no. 5. Forty-nine specimens from Sk.; three from Dh.
153. Sk. '28–49 Sq. 14·92′ Stratum IV	Æ	1 × 1	King on horseback to r. holding couched lance. Gr. legend as above	Bull to r. Legend and details defaced	*B.M. Cat.* Pl. XIX, 8; *P.M. Cat.* Pl. XII, 292; *A.S.R.* (1928), p. 65, no. 14. Sixteen specimens from Sk.
154. Sk. '29–2,552 Sq. 24·89′ Stratum IV	Æ	0·96 × 0·82	Similar	Similar	*A.S.R.* (1929), p. 89, no. 26

Serial no. and Findspot	Metal and Size	Obverse	Reverse	Remarks
155. Sk. '29–2,173 Sq. 26·92' Stratum IV	Æ 0·95	Mounted king to r. Double struck	Zeus Nikephoros Double struck	*A.S.R.* (1929), p. 89, no. 27
156. Sk. '29–2,665 Sq. 28·85' Stratum IV	Æ 0·8	Goddess standing to front on lotus with flower in raised r. hand. To l. monogram as in *B.M. Cat.* p. 85, no. 137; to r., monogram [monogram]. Legend effaced	Humped bull to r. Kh. legend: (*Maharajasa*)...*rajarajasa mahatasa*...(*Ayasa*)	*B.M. Cat.* Pl. xix, 5; *P.M. Cat.* Pl. xii, 308; *A.S.R.* (1929), p. 89, no. 28. For goddess with flower, cf. 'Stone Sculptures', ch. 36, no. 3 and *B.M. Cat. of Ancient Indian Coins*, Pl. xxxii, 5, 6
157. Sk. '29–172 Sq. 52·95' Stratum V	Æ 1	Similar. Gr. legend as on no. 137. monogram similar to above	Similar	
158. Sk. '26–4,451 Sq. 173·45' Stratum II	AR 0·57	King on horseback to r. In r. field, Kh. *hi*	Zeus Nikephoros. Kh. legend: *Maharajasa mahatasa Ayasa*. In l. field, monogram [monogram]; in r. field, Kh. *sa*	Base metal. Probably to be attributed to Azes II. Cf. p. 131 and n. 2
159. Sk. '26–4,127 Sq. 12·55' Stratum II	AR 0·58	Similar. Monogram indistinct	Similar. Monograms indistinct	
160. Sk. '26–2,459 Sq. 110·48' Stratum II	AR 0·5	Similar	Similar	
		AZILISES AND AZES II. (Cf. pp. 53, 773, 780)		
161. Sk. '14– Sq. 74·66' Stratum III	Æ 1×0·85	Heracles to front crowning himself; holds in l. hand club and lion skin. Monogram defaced. Gr. legend: ΒΑΣΙΛΕΩΣ [ΒΑΣΙΛΕΩΝ ΜΕΓΑΛΟΥ ΑΖΙ] ΛΙΣΟΥ	Horse standing to r. Above, Kh. *mi*; in r. field, Kh. *a*. Kh. legend: *Maharajasa rajatirajasa mahatasa Ayasa*	*A.S.R.* (1914), p. 31, no. 23. Cf. *P.M. Cat.* p. 132 (iii), where this coin is ascribed to Azes I and Azilises instead of to Azilises and Azes II. For a similar mistake, cf. *B.M. Cat.* p. 92, no. 1
		AZILISES. (Cf. pp. 53, 780–1, 783)		
162. Sk. '12–712 Sq. 107·68' Stratum II	Æ 0·9	King on horseback to r., holding whip and couched lance. Indistinct Kh. monogram (*ja*?) in r. field. Gr. legend as above	Bull standing to r. Kh. legend: *Maharajasa rajarajasa mahatasa Azilishasa*; above, Kh. *se* and Gr. Σ reversed	Cf. *P.M. Cat.* p. 139, no. 360 and Pl. xiv, 358; *A.S.R.* (1912), p. 48, no. 22

163. Sk. '14–2,341 Sq. 33·69′ Stratum II	Æ	0·65×0·65	Indra on elephant (Airāvata) holding bow in l. hand; foreparts of two other elephants to r. and l. Gr. legend as above	Turreted(?) goddess standing to l., holding in r. hand flaming lamp or incense-burner; in l. hand palms bound with fillet. In l. field, Kh. monogram ✦. Kh. legend: (*Maharajasa rajatira*)*jasa mahatasa Azili*-(*shasa*)	*A.S.R.* (1914), p. 31, no. 24. Two other coins only of this type are known. One was illustrated in *White King Sale Cat.* (Amsterdam, 1904), pt. I, Pl. IV, 299; the other was sold at Sotheby's in 1912
164. Sk. '14– Sq. 78·69′ Stratum II	Æ	1·05×0·85	Elephant to r. Gr. legend as above but barbarous	Bull to r. In r. field, monogram no. 37. Kh. legend as above	*P.M. Cat.* Pl. XIV, 364; *A.S.R.* (1914), p. 31, no. 25. Execution very poor. Double struck
165. Sk. '14–2,177 Sq. 83·76′ Stratum III	Æ	1·15×0·85	Goddess with turreted crown enthroned to r. Gr. legend as above, much defaced. In l. field, Kh. *bu*; in r., Gr. N(?)	Male deity to front carrying Nike on r. hand and club over l. shoulder. In l. field, ⸸, and below, same monogram as in no. 163; in r. field, ✤, and below, ✚. Kh. legend as above	*A.S.R. ibid.* no. 26. Cf. Cunningham, *Coins of the Śakas*, Pl. VIII, 6
166. Sk. '14–170 Spoil earth	Æ	1·1×0·95	King fully accoutred with helmet, shield, spear and palm to r. In r. field, monogram no. 36 (*P.M. Cat.*). Gr. legend as above	Deity standing to r. with flowing veil, holding diadem. In l. field, Kh. *mi*. Kh. legend: *Maharajasa rajatira*(*jasa mahatasa*) *Azilishasa*	*P.M. Cat.* Pl. XIV, 366; *A.S.R. ibid.* no. 27. Three specimens from Sk.
167. Sk. '26–742 Sq. 140·41′ Stratum II	Æ	0·68	King on horseback to r. holding couched lance. Gr. legend as above, mainly defaced	Goddess standing to l. holds in r. hand flaming lamp and in l. palm bound with fillet. Kh. legend as above. In l. field, monogram ✚, surmounted by bird(?); in r. field, Kh. *sa*(?)	For silver coins of this type, cf. Cunningham, *op. cit.* Pl. VII, 4, 4*a*; *B.M. Cat.* Pl. XX, 9–11. This copper specimen is unique
			AZES II AND AŚPAVARMA. (Cf. p. 783)		
168. Sk. '15–1,035 Sq. 87·72′ Stratum III	Æ	0·5	King on horseback to r. Gr. legend indistinct. In r. field, Kh. *va*	Pallas armed, to r. Kh. legend: *Indravarmaputrasa Aśpavarmasa strategasa*. In l. field, *nandipada*(?); in r. field, ⁂	*A.S.R.* (1915), p. 33, no. 11. A new type of Azes II with Aśpavarma. Cf. *B.M. Cat.* Pl. XX, 2, and *P.M. Cat.* Pl. XII, 317 and XV, 35. Six specimens in all from Sk.
169. Sk. '15–620 Sq. 125·68′ Stratum II	Æ	0·45	King on horseback to r. Gr. legend indistinct. In r. field, monogram ⊙ and Kh. *ya*. Gr. legend indistinct	Pallas armed to r. Kh. legend: ...*spa*.... In r. field, Kh. *pri*	*A.S.R. ibid.* no. 12
170. Sk. '33–247 Sq. 101·55′ Stratum II	Æ	0·48	Similar	Draped deity (?Pallas)	

Serial no. and Findspot	Metal and Size	Obverse	Reverse	Remarks
171. Sk. '33–283 Sq. 94·79' Stratum II	Æ 0·49	Similar	Similar	
172. Sk. '27–938 Sq. 43·92' Stratum II	Æ 0·45	Similar	Similar	
173. Sk. '14– Sq. 166·69' Stratum II	Æ 0·5	King on horseback to r. In r. field, Kh. *ya*. Marginal legend defaced	Pallas standing to r. In r. field, Kh. *pri*. Kh. legend: *Ispa*...; below, *Aya*...	*A.S.R.* (1914), p. 32, no. 28
		HERAUS. (Cf. p. 783)		
174. Sk. '29–648 Sq. 61·11' Stratum II	Æ 1·08	Diademed bust of king to r. in bead-and-reel border. (Half of coin only)	King on horseback to r. followed by flying figure of Nike with wreath. Gr. legend: [ΤΥΡ]ΑΝΝΟΥΝΤΟΣ ΗΑΟ[Υ ΚΟΙΙΑΝΟΥ]	*B.M. Cat.* Pl. XXIV, 7; *P.M. Cat.* Pl. XVI, 115; *A.S.R.* (1929), p. 89, no. 30
175. Sk. '12–35 Stratum II	Æ 0·48	Bust of king	Standing deity. Gr. legend illegible	Cf. silver type, *P.M. Cat.* Pl. XVI, 117
		RĀJUVULA. (Cf. pp. 54–5, 211, 292, 775–6, 783, 860)		
176. Sk. '12–548 Spoil earth	Copper with lead coating, 0·7	Maneless lion standing to r. Above, indistinct monogram. Marginal Gr. legend defaced	Heracles (?) facing with r. arm advanced. Kh. *sha* in r. field and *ḍa* in l. Kh. legend: *sa Rajalasa aprati*...	*P.M. Cat.* p. 166, no. 133; *A.S.R.* (1912), p. 49, no. 24; *B.M. Cat. Anc. Ind.* p. cxv. Fifteen specimens from Sk.
177. Sk. '12–151 Sq. 90·56' Stratum II	Lead 0·6	Similar	Similar. Kh. legend: ...*tra-pasa Rajalasa apra*	*A.S.R. ibid.* no. 25
178. Sk. '12–585 Spoil earth	Lead 0·55	Similar	Similar. Kh.: ...*Rajalasa*	*Ibid.* no. 26. Thinner than the preceding specimens
179. Sk. '14–385 Sq. 154·44' Stratum II	Lead 0·65	Similar	Similar. Kh.: ...*Rajalasa apra*	*A.S.R.* (1914), p. 33, no. 33
180. Sk. '14–352 Sq. 153·59' Stratum II	Lead 0·6	Similar	Similar. In l. field *ḍa* and swastika	*Ibid.* no. 34.
181. Sk. '15–309 Spoil earth	Lead 0·8	Similar. Tree-like monogram above lion	Similar	*A.S.R.* (1915), p. 34, no. 15
182. Sk. '20–474 Sq. 27·81' Stratum II	Æ 0·58	King on horseback to r.	Zeus Nikephoros, with sceptre, to l. Kh. legend: *Chatrapa*...*Rajuvula*. In r. field, Kh. *gha* and *sa*; in l., monogram no. 16 (*P.M. Cat.*)	Unique

183. Sk. '12- . Trial trench South of apsidal temple Stratum II	Æ 0·5	Head of king to r. Legend illegible	Pallas(?) to r. Kh. legend defaced	Cf. *B.M. Cat.* Pl. xv, 12, but the attribution to Rājuvula is not certain. The king's head calls to mind the head of Nahapāna, of which it may have been a prototype
		BHADRAYAŚA. (Cf. pp. 775, 784)		
184. Sk. '12–973 Sq. 67·66' Stratum II	Billon 0·6	Bust of king, diademed, to r. Corrupt Gr. legend: ΒΑΣΙ-ΛΕΩΣ ΣΩΤΗΡΟΣ	Pallas standing with aegis on l. arm and hurling thunderbolt with r. hand. Kh. *im*(?) in r. field, *da* in l. Kh. legend: *ma ...tasa Bhadrayaśasa*	*A.S.R.* (1912), p. 46, no. 9; *P.M. Cat.* Pl. IX, ix (supplementary). This ruler may be the Bhadrayaśa mentioned in an inscription from Mathurā (*Ep. Ind.* II, p. 207, no. xxxii and V. Smith, *Jain Stūpa at Mathurā*, p. 18 and Pl. XI
		IṀDRAVASA (?IṀDRAVARMA). (Cf. pp. 775, 784)		
185. Sk. '12 . Trial trench Stratum II	Æ 0·48	King on horseback to r. In front Kh. *ya*. Corrupt Gr. legend illegible	Pallas standing r. In front Kh. monogram *pri*. Kh. legend: ....*rasa Iṁdravasasa apa*	*A.S.R.* (1912), p. 49, no. 23. Eight specimens of this unique type from Sk., three of which were associated with coins of Gondophares. For the reading *Iṁdravasa* or *Iṁdrarasa*, which I formerly read as *Idharasa*, see Konow in *C.I.I.* II, xliv, n. 1
186. Sk. '14- Sq. 59·71' Stratum III	Æ 0·5	Similar	Similar	*A.S.R.* (1914), p. 32, no. 29
187. Sk. '15–612 Sq. 125·68' Stratum II	Æ 0·5	Similar	Similar	*A.S.R.* (1915), p. 32, no. 10
188. Sk. '28–952 Sq. 70·99' Stratum II	Æ 0·5	Similar	Similar	*A.S.R.* (1928), p. 66, no. 16
		KHARAHOSTES. (Cf. pp. 55, 61, 774)		
189. Sk. '22–933 Sq. 49·89' Stratum II	Æ 0·9 × 0·78	King on horseback with levelled spear to r. Gr. legend: [Χ]ΑΡΑΗШΣΤ[ΕΙ ΣΑΤΡΑΠΕΙ ΑΡΤΑΟΥ]	Lion to r. Kh. legend: *Chatrapa(sa pra Kharaöstasa Artasa) putrasa.* To r. X	*P.M. Cat.* Pl. XVI, 91. According to *C.I.I.* II, pp. 47–9, Kharahostes was the father-in-law of Rājuvula

Serial no. and Findspot	Metal and Size	Obverse	Reverse	Remarks
		GONDOPHARES WITH AŚPAVARMA. (Cf. pp. 62, 775, 777, 784, 839)		
190. Sk. '14–969 Sq. 47·70' Stratum III	Æ 0·82	King on horseback to l. Gr. legend illegible. Monograms effaced	Zeus standing to r. with r. arm extended and long sceptre in l.; monograms identical with those on *P.M. Cat.* Pl. xv, no. 35. Kh. legend: (*Jayatasa tratarasa*) *Imdra*(*varmaputrasa*) *strategasa* (*Aśpavarmasa*)	*P.M. Cat.* Pl. xv, 35. Cf. p. 211 and n. 3
		GONDOPHARES WITH SASAN. (Cf. pp. 62, 784)		
191. Sk. '14– Sq. 73·66' Stratum II	Æ 0·85	King on horseback to r. with r. arm extended; in front, Gondophares' symbol and Kh. *ga*. Gr. legend illegible	Zeus standing to r. with r. arm extended. In l. field, *nandipada* and Kh. *the*. In r. field, monogram no. 5, Kh. *pa* and two other symbols. Kh. legend: *maharajasa*	Cf. *P.M. Cat.* Pl. xv, 19; *A.S.R.* (1914), p. 32, no. 3. 246 specimens from Sk. Cf. p. 211 and n. 5
		GONDOPHARES. (Cf. pp. 58–60, 292, 784)		
192. Sk. '14–1,994 Sq. 42·72' Stratum III	Æ 0·9	Bust of king to r. diademed and bearded. Traces of Gr. legend	Winged Nike to r. with wreath and palm. Kh. legend: ...*pharnasa*	Cunningham, *Coins of the Śakas*, Pl. xii, 4; *A.S.R.* (1914), p. 32, no. 31. Nineteen specimens from Sk.
193. Sk. '26–4,149 Spoil earth	Æ 0·9	Similar. Corrupt Gr. legend: ...YΝΔΟΦΕΡ[ΡΟΥ]	Similar	
194. Sk. '27–39 Trench D34 Stratum II	Æ 0·98	Similar	Similar	*A.S.R.* (1927), p. 61, no. 10
195. Sk. '26–3,186 Sq. 99·49' Stratum II	Æ 0·48	Bearded head of king diademed r.	Rude device of thundering Pallas l. Kh. legend illegible	*I.M. Cat.* Pl. ix, 12. Eighty-two specimens from Sk. Cf. p. 211 and n. 7
196. Sk. '26–9 Sq. 122·66' Stratum II	Æ 0·45	Similar	Similar. Kh. legend: ...*maharajasa*	
197. Sk. '26–3,141 Sq. 48·52' Stratum III	Æ 0·48	Similar. Corrupt Gr. legend: ...ΑΕΙΒ...	Similar. In l. field, Kh. *stra*(?)	
198. Sk. '27–1,487 Sq. 63·118' Stratum II	Æ 0·48	Similar, much defaced	Similar. In l. field, Gondophares' symbol	*A.S.R.* (1927), p. 65, no. 6

			ABDAGASES. (Cf. pp. 61, 775, 784)		
199.	Sk. '15–651 Sq. 125·68' Stratum II	Æ 0·9	King on horseback to l. In front, symbol of Gondophares. Gr. legend corrupt: ΒΑΣΙΛΕΟΝ ΤΟ...ΕΩΝ	Zeus standing to r. with long sceptre in l. hand and r. arm extended. Kh. legend: ... *bhrataputra*.... To r. Kh. *pra*; to l. *nandipada*	*P.M. Cat.* Pl. xv, 61, 62; *B.M. Cat.* Pl. xxiii, 2; *A.S.R.* (1915), p. 33, no. 13. Fourteen specimens from Sk. Cf. p. 211 and n. 10
			ZEIONISES. (Cf. pp. 55, 61, 774, 784)		
200.	Sk. '28–2,068 Sq. 101·86' Stratum III	Æ 1·12	King on horseback with bow and r. arm extended; in r. field, *nandipada*. Legend illegible	Male figure r. facing mural-crowned deity with cornucopia, who is crowning him with a wreath. In l. field ✗; in r. ⅌	*B.M. Cat.* Pl. xxiii, 4; *P.M. Cat.* Pl. xvi, 82. Cf. pp. 180, 181, 211 and n. 13
			SASAN. (Cf. pp. 60, 61, 160–1, 776–7, 784)		
201.	Sk. '13–194, *a* Block E Sq. 77·65' Strata I–II	AR 0·6	Bust of bearded king to l. with crown bearing symbol of Gondophares. Same symbol repeated in l. field. Corrupt Gr. legend: Ν...CΜΟΗ... CΙΛ	Nike standing to l. with wreath in extended r. hand and palm branch (?) in l.; Kh. *bhu* in r. field. Kh. legend: (*Maharajasa A*)*śpabhataputrasa trata*(*rasa Sasasa*)	*A.S.R.* (1912), pp. 44, 49, no. 27. A resemblance has been seen to Pacores, but the bust is probably that of Sasan. Cf. pp. 60–1
202.	*Ibid.*	AR 0·6	Similar. Corrupt Gr. legend: Ν...CΜ...	Similar. Kh. legend: ...*sa Aśpabhrata*	*Ibid.* no. 28
203.	*Ibid.*	AR 0·6	Similar. Gr. legend: ...ΒΑCΙΛ...	Traces of Nike as above superimposed on the bust of king facing r. Kh. legend: ...*Rajasa Aśpabha*...*trasa tratarasa Sasasa*	*Ibid.* no. 29. Restruck on an older issue
204.	*Ibid.*	AR 0·55	Similar. Traces of Gr. legend: ...CΙΛΕ	Similar. Kh. legend: *Maharajasa Aśpa*...*Sasasa*	*Ibid.* no. 30
205.	*Ibid.*	AR 0·55	Similar. Traces of Gr. legend: ...ΙΛ...	Similar. Kh. legend: *śpabhataputrasa tratarasa Sa*...	*Ibid.* no. 31
206.	*Ibid.*	AR 0·6	Similar. Traces of Gr. legend	Similar. Kh. legend: ...*trasa tratarasa Sa*...	*Ibid.* no. 32
207.	*Ibid.*	AR 0·6	Similar but different bust. Gr. legend: ...ΑCΙΛ...	Nike as above. Kh. legend: ...*harajasa Aśpabha*...*trasa Sasasa*	*Ibid.* no. 33
208.	*Ibid.*	AR 0·6	Defaced	Traces of Nike. Kh. legend: *Mahara*...*ta putrasa tratara* ...*Sasa*	*Ibid.* no. 34. An overstrike

Serial no. and Findspot	Metal and Size	Obverse	Reverse	Remarks
		ANONYMOUS		
209. Sk. '29–1,241 Sq. 62·113' Stratum III	Æ 0·4–0·44	King on horseback to l. in beaded circle. No legend	Goddess standing to front in beaded circle. One monogram in l. and two in r. field. No legend	Eleven specimens, which are unique, were found with a coin of Sapedanes in a hoard of jewellery in Block D' of Sirkap (p. 188, no. 37). For monograms on reverse, see Whitehead's 'Commentary' below (p. 840)
		UNCERTAIN		
210. Kn. '17–133 N.E. corner of veranda; 5 ft. below surface	Æ 0·49	Bust of king of Sasan type to l. Corrupt Gr. legend	Standing figure (?Nike). Kh. legend: . . . *tradatasa*	
		SAPEDANES. (Cf. pp. 60, 61, 160, 161, 776, 784)		
211. Same findspot as no. 201 *supra*	Æ 0·62	Bust of king to l. with diadem and beard. Gondophares' symbol in l. field. Corrupt Gr. legend: . . . HAΩN BACIΛH . . .	Nike standing l. holding wreath and palm branch. ♆ in r. field. Kh. legend: *Rajarajasa tratarasa dhramia·a*. In exergue: *(Sa)pedanasa*	*Ibid.* no. 35. If the reading 'Sapedanes' or 'Sapedana' is correct, this ruler may perhaps be the 'Sandanes' mentioned in the *Periplus*, but the reading is questionable
212. *Ibid.*	Æ 0·62	Bust of king to l. wearing head-dress. Portrait different from no. 211. Same symbol in l. field. Gr. legend effaced	Nike to r. Monogram in l. field indistinct. Inscription blurred	*Ibid.* no. 39. Whitehead conjectures that the name in exergue may be *Aga* . . .
213. *Ibid.*	Æ 0·5	Traces of bust. Gr. legend obliterated	Nike standing l. as in no. 211. Same symbol in r. field as on no. 211. Kh. legend to l. . . . *dhramiasa*. In exergue, *Sapedanasa* (?)	*Ibid.* no. 37, but reading is doubtful
214. *Ibid.*	Æ 0·6	Bust of king to l. Same monogram in l. field. Gr. legend corrupt	Similar. Kh. *bhu* in r. field. Kh. legend: . . . *sa tratarasa dhramiasa*	*Ibid.* no. 38
215. *Ibid.*	Æ 0·6	Similar	Similar, but monogram blurred	*Ibid.* no. 36
216. Same findspot as no. 209 (*q.v.*)	Æ 0·62	Similar	Similar. Kh. legend as on no. 214	
		SATAVASTRA. (Cf. pp. 60, 160–1, 776, 784)		
217. Same findspot as no. 201 (*q.v.*)	Æ 0·65	Bust of king to l. with short beard. Gondophares' symbol in l. field. Corrupt Gr. legend: ΩCCAYOA. .	Nike standing r. holding wreath and palm branch. Kh. legend: . . . *rasa Satavastrasa maharajasa*	*Ibid.* no. 40

218. *Ibid.*	Ʀ	0·6	Similar. Gr. legend: ...BACIΛ...	Kh. *bhu* in l. field; Kh. legend ...*Satavastrasa mahara*.	*Ibid* no. 41
219. *Ibid.*	Ʀ	0·6	Similar. Gr. legend effaced	Similar Kh. legend: *mahara-jasa* ..	*Ibid.* no. 42
220. *Ibid.*	Ʀ	0·63	Similar	Similar	*Ibid.* no. 43. Obverse and reverse are both in good condition
221. *Ibid.*	Ʀ	0·63	Similar. Monogram intact. Gr. legend: ...HΩC	Similar. Kh. legend: ...*rasa* .. *jasa*	*Ibid.* no 44

KUSHĀN AND MISCELLANEOUS. (Cf pp. 66–78, 85–6, 212–13, 785–94, 840–2)

KADPHISES I. (See also nos. 258–60 and cf. pp. 66–9, 279, 292, 776, 785, 792)

222. **Ss. '15–3 3 ft. below surface**	Æ	0·8	Crude bust of Hermaeus, diademed, to r. Gr. legend effaced	Heracles facing with lion's skin on l. arm, club resting on ground in r. hand. Kh. legend: . .*Kujula*...	*B.M. Cat* Pl. xxv, 1–4; *P.M. Cat.* Pl. xvii, 1; *A.S.R.* (1915), p. 33, no. 16. 127 specimens from Sk. Cf. p. 212 and n. 2
223. **Ss. '15–5 9 ft. below surface**	Æ	0·65	Similar	Similar. Kh. legend defaced	*A.S.R. ibid* no. 17
224. **Sk. '14–933 Sq. 45·72′ Stratum III**	Æ	0·85	Similar. Gr. legend: [ΒΑΣΙ-ΛΕΩΣ ΣΤΗ]ΡΟΣΣΥ ΕΡΜΑΙΟΥ	Similar. Kh. legend: (*Kujula Kasasa Kushana*) *yavugasa dhramathidasa*	*A.S.R.* (1914), p 33, no. 36
225. **Sk. '13–293 Sq. 99·59′ Stratum II**	Æ	0·9	Similar. Corrupt Gr. legend: ...ΩNY...	Similar. The Kh. characters are clear as far as they go, but not legible	*A.S.R.* (1912), p. 52, no. 48. Cf. *I.M. Cat.* p. 66, no. 3. 1,975 specimens of these coins bearing the name Kujūla Kadphises in corrupt Greek on the obverse were found in Sk. For nos. 225–34, cf. p. 212 and n. 3
226. Sk. '12–786 Sq. 115·63′ Stratum II	Æ	0·85	Similar. Corrupt Gr. legend: ...ΥΛΔΥΚ...	Similar. Kh. legend apparently corrupt: (*Ku*)*jula kara dhramathi*(*dasa*)	*A.S.R. ibid.* no. 49. Probably issued by Vima Kadphises during his father's lifetime. Cf. pp 67–8
227. Sk. '12–1,170 Sq. 80·64′ Stratum II	Æ	0·9	Similar	Similar. Kh. legend: *Yavugasa dhramathidasa Kujula* (*Kasa*)*sa* ..	*Ibid.* no. 50
228. Sk. '14–952 Sq. 45·72′ Stratum III	Æ	0·9	Similar	Similar. Kh legend: *Dhramathidasa Kujula Kasasa* (*Kushana javugasa*)	*A.S.R.* (1914), p 33, no. 35
229. Sk. '14– Spoil earth	Æ	0·8	Similar	Similar Kh. legend apparently corrupt: . .*Kushasarathi* . In r field, monogram *pa* (?)	*Ibid.* no 37
230. Sk. '29–2,047 Sq 50·43′ Stratum II	Æ	0·96	Similar	Similar	Double struck

Serial no. and Findspot	Metal and Size	Obverse	Reverse	Remarks
231. Sk. '28–1,342 Sq. 62·96' Stratum II	Æ 0·76	Bust of Hermaeus to l.	Similar	*A.S.R.* (1928), p. 66, no. 17. Only four specimens showing the head of Hermaeus to l. have been found in Taxila
232. Sk. '28–1,558 Sq. 84·88' Stratum II	Æ 0·78	Similar	Similar	*Ibid.* no. 18
233. Sk. '24–666 Sq. 45·44' Stratum II	Æ 0·77	Similar	Similar	
234. Sk. '33–152 Sq. 32·42' Stratum II	Æ 0·9	Similar	Similar	
		KUJŪLA KARA KADPHISES (?KADPHISES II). (Cf. pp. 67–9, 292, 786, 792)		
235. Sk. '12–587 Sq. 103·69' Stratum II	Æ 0·9	Humped bull standing r. In r. field, uncertain Kh. character; above, *nandipada*. Gr. legend corrupt	Two-humped Bactrian camel standing r. Monogram 3 in field. Kh. legend: ...*sa Kujula Karakaphasa*...*dhra*(?)	*P.M. Cat.* Pl. XVII, 18; *I.M. Cat.* Pl. XI, 4; *A.S.R.* (1912), p. 53, no. 51. Twenty-three specimens from Sk. and one from Dh. Probably struck in Pushkalāvatī mint by Kadphises II during his father's lifetime. Cf. p. 212 and n. 7
236. Sk. '14– Sq. 45·76' Stratum III	Æ 0·95	Similar. In r. field, Kh. letter, *sa*(?). Gr. legend illegible	Similar. Kh. legend: *Maharayasa rayati rayasa*	*A.S.R.* (1914), p. 34, no. 40
237. Sk. '26–2,447 Sq. 91·52' Stratum II	Æ 0·92	Similar	Similar	Coarser execution
238. Sk. '26–2,164 Sq. 114·47' Stratum II	Æ 0·92	Similar	Similar. *Nandipada* symbol above	
239. Sk. '28–1,621 Sq. 88·86' Stratum II	Æ 1	Similar; in r. field, monogram	Similar; in r. field, Kh. *ka*	*A.S.R.* (1928), p. 66, no. 19
		KADAPHES. (Cf. pp. 67, 292, 785, 792)		
240. Sk. '12–135 Sq. 73·59' Stratum II	Æ 0·6	Figure seated cross-legged with r. hand uplifted; wears conical head-dress with knob at top.[1] Kh. legend: ...*gasa Kujula*.... In l. field, Kh. *sa*	Zeus standing r. with r. hand advanced, marginal legend indistinct	*P.M. Cat.* Pl. XVII, 29; *A.S.R.* (1912), p. 52, no. 52. Seventy-eight specimens of these very rare coins were found in Sk. and Dh., but all are in poor condition. For nos. 240–8 cf. p. 212 and n. 6

[1] The seated figure has been identified as the Buddha, but this identification is more than questionable. On some of the coins (e.g. no. 243 and *P.M. Cat.* Pl. XVII, 29) he is holding in his right hand an object which looks like a double axe or hammer and he wears a high conical head-dress ending in a round knob (cf. no. 242). These attributes are not found with any known figure of the Buddha or Bodhisattva.

241.	Sk. '12–995 Sq. 93·67' Stratum III	Æ	0·6	Similar Kh. legend: . *sa Kushana*	Similar Kh. *va*(?) in r. field, marginal legend obliterated	*A.S.R.* (1912), no. 53
242.	Sk. '12–427 Stratum II	Æ	0·6	Similar. Kh. legend. . .*Kasasa*	Similar, much mutilated	*Ibid.* no. 54
243.	Sk. '14– Sq. 76·66' Stratum III	Æ	0·6	Similar. Kh legend . . .*Kujula*. . . . In l field, Kh. *sa*	Similar Gr. legend corrupt In l field, Kh *ku*	*A.S.R.* (1914), p. 33, no. 38
244.	Sk. '15–554 Sq. 125·68' Stratum II	Æ	0·7	Similar Kh legend illegible	Similar. In l field, Kh *pu*	*A.S.R.* (1915), p. 34, no. 18
245.	Sk. '15–612 Sq. 125·68' Stratum II	Æ	0 65	Similar Kh legend *kadaphasa ma*. .	Similar	*Ibid* no 19
246.	Sk. '26–2,410 Sq. 96·46' Stratum II	Æ	0·68	Similar	Similar. Much defaced	
247.	Sk. '26–3,088 Sq. 98·52' Stratum II	Æ	0·63	Similar	Similar	
248	Sk. '26–4,230 Sq. 16·48' Stratum II	Æ	0 62	Similar	Similar	
249.	Sk. '14– Sq. 83 73' Stratum III	Æ	0·7	Diademed head to r resembling that of Claudius on Roman coins Gr legend obliterated	King seated r in a curule chair, r hand extended in l field, monogram no 3 (*P.M Cat.*), in r field, Kh *bra* Kh legend · *Kushana yauasa Kujula Kaphsasa sa(cha)dhramathitasa*	*B.M Cat.* Pl xxv, 5; *P.M. Cat* Pl. xvii, 24; *A.S.R.* (1914), p. 33, no. 39. 334 coins of this type were found in Sk. and five at Dh. and one at Jn. Cf pp. 212 and n. 5, 385–6
				SOTER MEGAS (Cf pp. 202, 786, 792)		
250	Dh '14–1,024 From a hollow block of kanjūr on steps west of main stūpa	Æ	0 5	Within dotted border erect nude figure with long sceptre in r hand and drapery over l arm In l field, symbol of Soter Megas (no 9, *P.M Cat.*)	Within dotted border draped figure standing to r In l field, *nandipada*	*P.M Cat* Pl xvi, 113, *A.S.R.* (1914), p 32, no 32. Three specimens from Dh Cf pp. 69 and n 2, 239
251	Dh '15–1,466 East gate of main stūpa entrance, 2 ft below surface	Æ	0 45	Similar In r field, Kh *vi*	Female figure holding cornucopiae to l Symbol of Soter Megas	*A.S.R.* (1915), p 33, no. 14

Serial no. and Findspot	Metal and size	Obverse	Reverse	Remarks
		VIJAYAMITRA AND OTHER RULERS OF KULŪ. (Cf. pp. 213, 787, 793)		
252. Sk. '30–51 Sq. 138·52′ Stratum II	Æ 1·08 × 1·08	Shaft surmounted by *triratna* in railing; circlet surrounded by four *triratnas*; conventionalised lotus and ♉ symbol. Kh. legend: [*Ku*]*lutasa Vijayamitasa*	Six-arched *chaitya* surmounted by standard swastika and Victory symbol. Br. legend: [*Rājña Kulū*]*tasya Vijayamitrasya*	I am indebted to Dr John Allan for identifying these as coins of the rulers of Kulū (Kulūta) and for the reading of the names on nos. 254–6. For a silver coin of Vīrayaśa in the British Museum, cf. *B.M. Cat. Anc. Ind. Coins*, pp. c and 158
253. Sk. '30–314/1 Sq. 137·53′ Stratum II	Æ 1·08 × 1·08	Similar. Kh. legend: [*Ku*]*lutasa* [*Vija*]*yamitasa*	Similar. Same Br. legend	
254. Sk. '30–314/2 *Ibid.*	Æ 1·08 × 1·08	Types indistinct but traces of *triratnas* round circle. Kh. legend: [*Ra*]*ña Kulutasa Viraya*[*śasa*]	Defaced	
255. Sk. '30–314/3 *Ibid.*	Æ 1·07 × 1·08	Similar to no. 252 but order of symbols different. Kh. legend: [*Sa*]*camitasa* (?)	Similar to no. 252 but defaced Br. legend: . . .*ya*. . .	
256. Sk. '30–314/4 *Ibid.*	Æ 1·02 × 1·02	Similar but tree-in-railing in place of *triratna*. Kh. legend effaced	Similar symbols. Br. legend: . . .*Āryasya*. . .	
257. Sk. '30–314/6 *Ibid.*	Æ 0·97 × 0·97	Similar to no. 252. Kh. legend: . . .*jayami*. . .	Similar to no. 252. Br. legend effaced	
		KADPHISES I or II. (Cf. pp. 68, 160–1, 785–6, 792)		
258. Same findspot as no. 201 (*q.v.*)	AR 0·6	Bust of king to l. with conical head-dress. Corrupt Gr. legend: A·XOþ. . .	Nike standing l. holding wreath and palm branch. Kh. *bhu* in r. field. Kh. legend: . . .*sa maharajasa ja*. . .*sa*	*A.S.R.* (1912), p. 52, no. 45. This and the two following specimens are unique. The head with its peculiar conical hat resembles that of V'ima Kadphises, but is probably attributable to Kujūla Kadphises. Cf. pp. 211, n. 1, 212 and n. 4
259. *Ibid.*	AR 0·6	Similar. Corrupt Gr. legend	Similar. Kh. legend: . . .*sa rajatirajasa Kushaṇasa yavugasa*?)	*Ibid.* no. 46
260. *Ibid.*	AR 0·58	Similar	Similar. Kh. legend: . . .*rajasa raja*. . .	*Ibid.* no. 47

			KANISHKA. (Cf. pp. 69–71, 292, 787, 792)		
261.	Dh. '15–94 R3; 4 ft. below surface	Æ	1·05	King standing at altar. Gr. legend defaced	Buddha (?) seated, facing, cross-legged on throne. Legend defaced	Very rare. Cf. Cunningham, *Coins of the Kushāns*, Pl. XVIII, 14, but his reading of the reverse legend is doubtful. *A.S.R.* (1915), p. 34, no. 20.
262.	Gr. '27–227 North of stūpa; 5 ft. below surface	Æ	0·5	Similar	Deity standing to l. with r. hand extended	Cf. p. 347
			HUVISHKA. (Cf. pp. 71–2, 292, 787–8, 793)		
263.	Gr. '27–162 East of outer wall; 4 ft. below surface	Æ	0·87	King seated cross-legged to front	Moon-god to l. in beaded circle. In l. field, monogram no. 4 (*P.M. Cat.*)	*P.M. Cat.* Pl. XIX, 194
264.	Bl. '30–192 East of main stūpa; 3 ft. 9 in. below surface	Æ	0·98	Similar	Similar	
265.	Gr. '27–123 North of stūpa C; 3 ft. below surface	Æ	1	King r. riding on elephant. Inscription defaced	God (?Pharro) to l. in beaded circle. Monogram indistinct	
266.	Dh. '15–1,601 Debris	Æ	0·9	King facing, diademed and radiate, reclining on low couch	Two-armed Śiva to l. with long trident in r. hand and gourd in l. To l., three-pronged monogram	*A.S.R.* (1915), p. 35, no. 21. Debased Huvishka type. Cf. p. 386
			(LATE IMITATIONS)		
267.	Sk. '14–173 Sq. 176·43′ Stratum I	Æ	1·03	King riding on elephant, crudely drawn	Deity standing, l. hand outstretched. Four-pronged Kushān symbol to r. Kh. *sa* to l.	
268.	Sk. '14–186 Sq. 179·53′ Stratum I	Æ	0·82	Subject uncertain	King standing at altar (?)	
			LATER KUSHĀN. (Cf. p. 793)		
269.	Bl. '30–320 North-west corner of monastery; 5 ft. below surface	Æ	0·72	King seated front on throne	Seated goddess with cornucopia	Crude style. Apparently a new type. Cf. p. 396
			BACHARAṆA. (Cf. pp. 76, 788)		
270.	Bl. '30–278 Doorway of cell C 8; 4 ft. 6 in. below surface	AV	0·77	Kushān type of king at altar. Br. legend: *Salada*; to r., under arm, *Bacharana*	Throned goddess with cornucopia	*I.M. Cat.* Pl. XIV, 8. Cf. p. 396

Serial no. and Findspot	Metal and Size	Obverse	Reverse	Remarks
		BHADRA. (Cf. pp. 76, 283, 293, 788–9)		
271. Dh. '33–298 Sq. 18·25'; 15 ft. below surface	AV 0·71	Kushān type of king at altar Br. legends vertically arranged. r. *Shālada*; under arm, *Bhadra*	Throned Ardochsho holding cornucopia No legend	*I.M. Cat.* Pl xiv, 4
272. Dh. '33–298 *Ibid.*	AV 0·72	Similar	Similar	
		KIDĀRA KUSHĀN. (Cf. pp. 73–4, 283, 293, 789)		
273. Dh. '33–298 *Ibid.*	AV 0·8	King standing at altar Br. legend: *Kidara* vertically under l. arm	Throned Ardochsho. No legend	Four specimens from Dh.
274. Dh. '33–298 *Ibid.*	Electron or debased gold; 0·89	Similar, but more debased	Similar, but more debased	Twenty-three specimens from Dh. Cf. pp. 268, 289
275. Mm. '15–309 Stūpa; 10 ft. below surface	AR 1·1	Head of king to front with low Sasanian crown surmounted by globe(?) and wings. Beaded border. Legend in Brāhmī letters: *Kidāra Kushāna shā*	Fire altar, with two attendants, carrying drawn swords. Below the altar are three characters, which Cunningham took to be numerals	Cf Cunningham, *Coins of the Later Indo-Scythians*, Pl. vi, 1, *A.S.R.* (1915), p. 36, no. 45; M. F. C. Martin in *J.R.A.S B.* iii, 1937, no. 2.
		CHANDRAGUPTA II. (Cf. pp. 76, 283, 293, 789)		
276. Dh. '33–298 Sq. 18·25'; 15 ft. below surface	AV 0·76	King standing l. holding bow in l., arrow in r. hand; *garuda* standard behind r. arm. Br. legend *Chandra* vertically below l. arm; marginal legend indistinct	Goddess Lakshmī seated on lotus, holding lotus in l hand, fillet in r. Br. legend: *Srī Vikkramaḥ*	These are the only two gold coins of Gupta kings found at Taxila. *B.M. Cat. of Gupta Dynasties*, Pl. vii
277. *Ibid.*	AV 0·76	Similar	Similar	
		VĀHI-TIGĪN OF KHURASĀN. (Cf. p. 293)		
278. Dh. '14–1,053 North of main stūpa Debris	AR 1·16	Bust of king to r., three-quarters face, beardless but moustached; low crown, with three points in front and at sides, surmounted by tiger's head. Kushān Greek characters in field before face. Br. legend in broad margin. Cf. *I.M. Cat.* p. 234, no. 1	Bust of deity facing, wearing crown Head surrounded by flames rising to a point. For Pahlavī legend, see *I.M Cat.* p. 234	*I.M Cat.* p. 234, 1 and Pl. xxv, 1; Whitehead in *Num. Chron.* (1937), p. 60

SASANIAN. (Cf. pp. 73–4, 239, 271, 293, 347, 385–6, 394, 790–1)

279.	Dh. '14–1,073 Stūpa N 11 from relic vase	Æ 0·85	Bust of Shāpur II (A.D. 309–79) to r. with short beard, wearing mural crown surmounted by globe. Beaded border. In front, legend *Shoboro* in Kushān Greek characters	Squat, heavy type of fire altar with guards and symbol ʊ on middle Double struck	Struck at Merv. *A.S.R.* (1914), p. 35, nos. 48, 49; E. Herzfeld in *Mem. A.S.I.* no. 38, p. 37. Fifteen of these coins were found in the reliquary of stūpa N 11 at the Dharmarājikā
280.	*Ibid.*	Æ 0·85	Similar	Similar	
281.	*Ibid.*	Æ 0·65	Similar	Similar	
282.	*Ibid.*	Æ 0·65	Similar	Similar	
283.	Gr. '27–169 D 7; 7 ft. 6 in. below surface	AR 1·2	Bearded bust of Shāpur III (A.D. 383–8) to r., wearing mural crown surmounted by globe and wings. Beaded circle. Pahlavī legend in r. field defaced	Fire altar on two-stepped base, with king's head appearing among flames. Guard on each side presenting arms. The whole in beaded circle	Cf. Paruck, *Sasanian Coins*, Pl. XII, T. IX
284.	*Ibid.*	Æ 1·6	Similar	Similar	
285.	Bl. '30–259 Inside a relic vase	AR 1(?)	Bearded bust of Varahrān IV (A.D. 388–99) to r. in beaded border, wearing mural crown surmounted by globe and wings. Pahlavī legend indistinct	Tall fire altar with pointed flames; attendant on either side 'presenting' spears. Marginal legend uncertain	Cf. Paruck, *op. cit.* Pl. XIII, T X
286.	Gr. '27–151 C; debris	Billon 1·02	Similar	Similar	Cf. p. 347 *supra*
287.	Gr. '27–344 D. 8; 5 ft. 2 in. below surface	Billon 1·02	Similar	Similar	Cf. *ibid.*
288.	Dh. '13–390 D4; platform of stūpa	AR 1·18	Bust of Khusrū II (A.D. 590–628) to r.; crown surmounted by spreading wings enclosing star in crescent. Stars and crescents on margin. Legend l., *afzūt*; r., *Khūsrūb* or *Khūsrūi*	Narrow fire altar with attendants facing front, a crescent over each. Triple beaded circle	*I.M Cat.* Pl. XXIV, 11. Broken
289.	Mm. '15–253 Monastery; 6 ft. below surface	Æ 0·65 × 0·6	Bust of king to r Traces of legend in front	Squat altar with heavy base and top. Same symbol on middle as on no. 285. Traces of attendants No legend	Cf *I.M. Cat.* Pl. XXIV, 5; *A.S.R.* (1915), p. 35, no 22
290.	Gr. '27–164	Æ 0·62	Similar	Similar	
291.	Dh. '15–1,147 *Pradakshinā patha* north of stūpa	Æ 0·62	Similar. Lion's head visible above head-dress	Similar	Probably of Varahrān II (A.D. 275–92). Cf. E. Herzfeld, *op. cit* p. 24. ? Hormizd, Governor of Shāpur I (A.D. 264–72)

Serial no. and Findspot	Metal and Size	Obverse	Reverse	Remarks
292. Gr. '27–C35 Debris; 3 ft. 6 in. below surface	Æ 0·62	Bust of king to r.	Similar	
293. Mm. '15–181 Monastery	Æ 0·65 × 0·65	Similar, much defaced	Similar, much defaced	*A.S.R.* (1915), p. 35, no. 23. Cf. p. 364
294. Mm. '15–268 Monastery; 3 ft. below surface	Æ 0·55 × 0·55	Similar	Similar	*Ibid.* no. 24
295. Mm. '15–271 Stūpa; 4 ft. below surface	Æ 0·55 × 0·45	Similar	Similar	*Ibid.* no. 25
296. Gr. '27–6.	Æ 0·62	Similar	Similar	
297. Gr. '27–110 Outside monastery; 5 ft. below surface	Æ 0·5	Bust of king wearing crown surmounted by globe and wings	Fire altar in dotted border	113 specimens from Giri
298. Bl. '30–252 Main stūpa; 11 ft. 5 in. below surface	Æ 0·61	Bust of king, much defaced	Fire altar (?)	
299. Jn. '16–164	Æ 0·4	Crude standing figure similar to that on nos. 343–6	Monogram ✱	Belongs to same class of debased 'Indo-Sasanian' (= late Kushān) coins as nos. 342 ff.
		WHITE HUNS. (Cf. pp. 76–7, 293, 313, 396, 791)		
300. Bl. '30–216 Cell 8; 6 ft. below surface	AR 1·3	Beardless head of king to r. with prominent nose and receding forehead; wears small conical hat. Fly-whisk or plume in front of face. Beaded border. Legend in Kushān Greek characters possibly (β)αχλα, i.e. Balkh	Fire altar with bust amid flames, and guards on either side presenting arms. Beaded border	Cf. Cunningham, *Coins of the Later Indo-Scythians*, Pl. VII, 13. *A.S.R.* (1915), XXVI, nos. 46–50
301. Bl. '30–333/7 Cell C13; 7 ft. 3 in. below surface	AR 1·12	Similar, with full heavy chin. Crescent and star (?) in front of head-dress; ends of large crescent behind shoulders; club in front of face. Legend in Br. behind head, *shahi*; in front, *Jarusha*	Similar	
302. Bl. '30–333/20 *Ibid.*	AR 1·01	Similar type, but different features. Br. lettering to r. of head	Similar	Cf. Cunningham, *op. cit.* Pl. IX, 1

303. Bl. '30–333/1 Cell C13; 7 ft. 3 in. below surface	Æ	1·15	Similar to no. 301. Huna symbol ※ and legend in Br.: *shahi* behind head; in front, *Jarusha* (?)	Indistinct fire altar with traces of attendants. Thin metal	
304. Bl. '30–333/2 *Ibid.*	Æ	1·12	Similar	Similar	
305. Bl. '30–333/3 *Ibid.*	Æ	1·1	Similar	Similar	
306. Bl. '30–333/9 *Ibid.*	Æ	1·2	Similar. Br. legend: behind head, *shahi*; in front, *Jatukha* (?)	Similar	
307. Bl. '30–333/12 *Ibid.*	Æ	1·13	Similar, but Br. legend illegible	Similar	
308. Lc. '15–16 Monastery; 3 ft. 6 in. below surface	Æ	1·22	Similar, Br. legend: ...*Jabula*	Similar	
309. Lc. '15–16, *a* *Ibid.*	Æ	1·25	Similar. Same legend	Similar	
310. Lc. '15–16, *b* *Ibid.*	Æ	1·2	Similar	Similar	
311. Lc. '15–16, *c* *Ibid.*	Æ	1·15	Similar, but *Jaruba*	Similar	
312. Lc. '15–16, *d* *Ibid.*	Æ	1·15	Similar to no. 303	Similar	
313. Dh. '30–606/4 Sq. 20·10'; 4 ft. 4 in. below surface	Æ	1·22	Similar, but illegible	Similar	

UNCERTAIN

314. Jn. '16–270 Monastery 19; 4 ft. 9 in. below surface	Æ	0·7	King standing r., much defaced	Seated goddess, much defaced	Ruler uncertain. Probably later Kushān. Cf. no. 269

TORAMĀṆA OF KASHMĪR. (Cf. pp. 293, 364, 397, n. 1, 794)

315. Mm. '27–13 Below east wall of chapel I	Æ	0·8	King standing, offering incense at altar in Kushān fashion, clad in breeches and long tunic, with waist-band. Staff in l. hand. In r. field, a vase with pellets above	Goddess seated, holding branch over r. shoulder. To r., Br. letters defaced; to l., a vase	*I.M. Cat.* Pl. XXVII, 3. This and the following coin of Toramāṇa of Kashmīr are to be distinguished from the coins of Toramāṇa, father of Mihiragula, which are more in the Ephthalite than in the Kushān tradition. (*I.M. Cat.* Pl. XXV, 4)
316. Dh. '13–1,121	Æ	0·82	Similar	Similar	*Ibid.*

Serial no. and Findspot	Metal and Size	Obverse	Reverse	Remarks
		JAYĀPĪḌA (VINAYĀDITYA). (Cf. pp. 293, 794)		
317. Dh. '15–1,126 N 16, south; 3 ft. below surface	Æ 0·9	Standing king. Br. legend (?)	Headless seated goddess. Br. legend: *Śrī Vinaya(ditya)*	*I.M. Cat.* Pl. XXVII, 7
		QUEEN DIDDĀ. (Cf. pp. 213, 793–4)		
318. Sk. '14– Sq. 182·69′ Stratum II	Æ 0·74	Goddess; Br. legend l. *Śrī*; r. *Diddā*	King standing. Legend: *devya* indistinct	*Ibid.* 13
		SAṄGRĀMA. (Cf. pp. 213, 793–4)		
319. Sk. '13–1,240 Sq. 80·61′ Stratum III	Æ 0·75	Goddess seated. Br. legend: *Saṅgrāma*, defaced	King standing. Br. legend defaced	*Ibid.* 14. Two specimens from Sk.
		SPALAPATIDEVA OF OHIND. (Cf. p. 794)		
320. Ss. '15–45 Piṇḍorī; 4 ft. below surface	Æ 0·75	Recumbent bull to l., much defaced	King on horseback with lance. Much defaced	*I.M. Cat.* Pl. XXVI, 1
		SĀMANTADEVA. (Cf. pp. 213, 293, 364, 390, 794)		
321. Sk. '14– South of apsidal temple; spoil earth	Æ 0·7	Elephant to l. Br. legend above: *Śrī Sāmantadeva*, indistinct	Lion to r. Uncertain club-like object in front	*I.M. Cat.* p. 248, no. 15. Three specimens from Sk.
322. Sk. '14– Sq. 180·57′ Stratum II	Æ 0·52	Bull l., in rude outlines. Legend as above, effaced	Horseman r., much defaced	Cf. *I.M. Cat.* Pl. XXVI, 3
323. Sk. '22–570 Spoil earth	Æ 0·68	Similar	Similar	*Ibid.*
		VAKKADEVA. (Cf. pp. 213, 794)		
324. Sk. '14–1,677 Sq. 81·73′ Stratum II	Æ 0·68	Elephant l. Br. legend above: *Śrī Vakka-deva*	Lion r. and club-like object in front of him	*I.M. Cat.* Pl. XXVI, 4. Two specimens from Sk.
		UNCERTAIN. (Cf. pp. 239–40, 293, 347, 385–6, 389, 789–90)		
325. Hl. '12–113	Æ 0·8	Deer to r.	Spoked wheel	Perhaps a broken double-cast coin. Cf. *B.M. Cat. Ancient Indian Coins*, Pl. XII, 2
326. Sk. '29–2,857 Sq. 52·95′ Stratum IV	Æ 0·8	Tree-in-railing	Indistinct	

327. Sk. '26–29 Sq. 133·68' Stratum II	Lead 0·6	Bull to r. Kh. legend illegible	? Tripod. Much defaced	
328. *Ibid.*	Lead 0·65	Bull to r. Legend effaced	Defaced	
329. Sk. '20–345 Sq. 31·86' Stratum II	Æ 0·68 × 0·56	King on horseback to l.; possibly Kharahostes	Deity seated on throne. Kh. legend illegible	
330. Sk. '15–1,757 Sq. 81·76' Stratum III	Æ 0·53	Bust of king to l. Gr. legend illegible	Pallas (?) standing. Kh. legend mutilated	
331. Sk. '30–131 Sq. 138·52' Stratum II	Lead 0·71	Humped bull to r. Legend indistinct	Nike (?) standing front. Legend indistinct	Two specimens from Sk.
332. Sk. '26–591 Sq. 131·59' Stratum II	Æ 0·6	Head of Hermaeus (?) to r.	Standing Nike. Much defaced	
333. Sk. '30–535 Sq. 45·90' Stratum VI	Æ 0·5	Crude bust of king (?) to r.; probably Gondophares	(?) Crude Pallas standing. Border of pellets below	
334. Mm. '15–230 Stūpa; 3 ft. 6 in. below surface	Æ 0·8	Tree-in-railing	Indistinct. Corrupt Gr. (?) legend	*A.S.R.* (1915), p. 35, no. 44. Cf. p. 364
335. Dh. '30–692 Sq. 17·18'; 4 ft. 10 in. below surface	Æ 0·85	Crude figure of king standing at altar	Goddess seated on throne	Crude imitation of late Kushān coin
336. Dh. '30–108 A6; 2 ft. 3 in. below surface	Æ 0·75	King on horseback to r.	Bull seated to l. Above, part of Br. legend: *Spati*	
337. Gr. '27–C67 Between stūpas 2 and 3; 2 ft. 10 in. below surface	Æ 0·78	Crude standing figure	Triangular symbol (?)	
338. Sk. '14–1,827 Sq. 66·70' Stratum III	Æ 0·6 × 0·5	Bust of king to r.	Indistinct figures in dotted circle	*Ibid* no. 47
339. Sk. '26–2,868 Sq. 94·46' Stratum II	Æ 0·65	Bust of king to r.	(?) Fire altar; much defaced	
340. Sk. '28–905 Sq. 68·102' Stratum II	Æ 0·62	Bearded bust of king to r.	Fire altar; much defaced	
341. Sk. '28–820 Sq. 64·106' Stratum II	Æ 0·6	Crude bust of king	Standing deity (? Nike) to r.	

Serial no. and Findspot	Metal and Size	Obverse	Reverse	Remarks
342. Dh. '12–621 O 2; 3 ft. below surface	Æ 0·5	Crude figure with arms outstretched	Four parallel lines	*A.S.R.* (1912), p. 46, no. 10. For this and the following specimens, cf. Cunningham, *Coins of Medieval India*, pp. 46–52. They are probably debased Indo-Sasanian types
343. Sk. '14–Sq. 58·73' Stratum III	Æ 0·45	Crude standing figure	Three parallel lines	*A.S.R.* (1914), p. 34, no. 41. Cf. pp. 345, 364
344. Dh. '14–1,024 From a hollow block of kanjūr on steps west of main stūpa	Æ 0·55 × 0·35	Similar	Square within circle of dots	*Ibid.* no. 42. 118 of these coins were found in the main stūpa at Bhamāla, where no. 298 was also found. For nos. 344–6, cf. pp. 279, 394, 396
345. *Ibid.*	Æ 0·5 × 0·45	Similar	Similar	*Ibid.* no. 43
346. *Ibid.*	Æ 0·5 × 0·4	Similar	Similar	*Ibid.* no. 44
347. Dh. '15–1,303 P 4; 1 ft. below surface	Æ 0·5	Crude figure standing, in incuse, as on nos. 342 and 343	Uncertain	*A.S.R.* (1915), p. 35, no. 26. For nos. 347–9, cf. p. 247.
348. *Ibid.*; 1 ft. below surface	Æ 0·45	Crude figure standing in incuse	Thick lines	*Ibid.* no. 28
349. Dh. '15–619 T 2; 2 ft. below surface	Æ 0·45	Similar	Similar	*Ibid.* no. 29
350. Dh. '14–1,024 With nos. 344–6	Æ 0·55 × 0·5	Crude human figure and dots	Br. monogram *bal* within dotted border	*Ibid.* no. 46

351. Lc. '15–20 Monastery; 2 ft. 6 in. below surface	Æ	0·6 × 0·5	Crude design	Defaced	*Ibid.* no. 38
352. Same findspot as nos. 344–6	Æ	0·55 × 0·45	Brāhmī character (?) and dots	Br. monogram *bal* within dotted border	*Ibid.* no. 45
353. Dh. '15–1,303 P4; 1 ft. below surface	Æ	0·5	Uncertain objects within incuse	Four thick lines	*Ibid.* no. 27
354. Lc. '15–19 Stūpa; 10 ft. below surface	Æ	0·5 × 0·45	Solar symbol	Dots	*Ibid.* no. 35
355. Lc. '15–68 Stūpa; 11 ft. below surface	Æ	0·45 × 0·4	Small fire altar	Defaced	*Ibid.* no. 36
356. Lc. '15–48 Stūpa; 12 ft. 6 in. below surface	Æ	0·5 × 0·45	Fire altar	Dots	*Ibid.* no. 39
357. Mm. '15–100 Monastery; 7 ft. 6 in. below surface	Æ	0·45 × 0·4	Crude figure standing	Crude figure standing in beaded border	*Ibid.* no. 38. Cf. p. 364
358. Gr. '27–64 Sq. 22·13'; 4 ft. 6 in. below surface	Æ	0·61	Tree (?) in incuse	Device indistinct	Cf. p. 364
359. Lc. '15–13 11 ft. below surface	Æ	0·55 × 0·45	Crude human figure seated (?)	Kh. (?) *da* and *ya* with dots	*Ibid.* no. 34

COMMENTARY ON RARE AND UNIQUE COINS

BY R. B. WHITEHEAD, LITT.D.[1]

General remarks

This commentary is mainly concerned with the cross-section of Taxila called Sirkap. The Bactrian Greek invaders captured the Bhiṛ Mound settlement and founded the town represented by the lower strata of Sirkap. Later this fell to the Śakas and then to the Parthians, who built new cities on the ruins of the old. Then came the sack of the Śaka-Parthian Sirkap by the Kushāns; the Kushān Taxila was Sirsukh. Sirkap appears to have been suddenly destroyed; an inference drawn from the abundance of deposits of gems and jewellery; the virtual absence of hoards of silver money is remarkable. There is an astonishing paucity of such pieces: no large Indo-Greek silver at all; very few gold coins. The biggest hoard of silver is punch-marked and comes from the Bhiṛ Mound; most of the other hoards are copper. Where is the specie of the city merchants? If the city was besieged and sacked, why hide jewellery and not gold and silver money? Possibly, the wealthier citizens of Taxila, who shared with other Indians an age-long habit of hoarding, had already buried their surplus specie as a matter of custom in secret places outside the city. Jewellery and personal effects in daily use would be held back till the siege itself, when they would have to be concealed inside the walls. The coin harvest represents the everyday currency of the people—almost entirely copper and lead after the punch-marked era. Coins of different periods and regions circulate together in an Indian bazaar; at Taxila there are very few pieces, apart from punch-marked, which do not belong to the submontane tract extending from the Sutlej to Kābul. With one exception[2] there are no Roman or Seleucid, very few Bactrian, and not a large number of Indo-Greek coins; the great majority are pieces of the Indo-Scythians (Śakas), Indo-Parthians (Pahlavas) and Kushāns. The general distribution is not unlike that discovered by Masson at and near Kābul. Only a relatively small portion of the lower strata at Sirkap has been excavated; still, the Indo-Greek finds are probably a representative sample. The Indo-Greeks did not strike coin on the vast scale of their successors. No Greek records have been discovered outside the coin legends and some rough *graffiti*. The coins of the Indo-Greeks still remain all important for the reconstruction of their history.

Meaning of monograms

We have to determine, if possible, what coins were actually minted in Taxila and its locality. Sir Alexander Cunningham's classification was primarily based on the monograms as mint marks; he admits that a monogram may indicate the name of a mint master or of a magistrate, yet in his actual detailed analysis he treats all the marks described as those of cities (*Num. Chron.* 1868). This was the opinion of his age. But Cunningham, with his great flair for the subject and his vast experience, was also guided by style and fabric, above all by provenance; so his

[1] The views expressed in this commentary are personal to Dr Whitehead. [J.M.]

[2] A silver piece of Augustus found in stūpa 4 at the Dharmarājikā. Cf. vol. I, p. 277.

conclusions cannot be far out, at any rate as regards the broad distinction between east and west of the Indus, which divides the province of Taxila from Gandhāra and the Paropamisadae.[1] He suggested as monograms of Taxila Ā, which occurs only on the shield and trident copper of Demetrius exemplified by no. 42, and a mark (*P.M. Cat.* p. 218, no. 31) found with Σ on coins of Strato, Antialcidas and Lysias. Two specimens of the Demetrius issue were once brought to me from an Attock site (*Num. Chron.* 1923, p. 342), and one comes from Taxila, so the trident may indicate some event on the Indus; nothing more definite can be deduced. Pieces with the second mark occur at Begrām as well as Taxila. The Besnagar epigraph tells us that Antialcidas ruled at Taxila; it is a noteworthy circumstance that his money found at Sirkap does not stand out in any way from the rest. Much of the money of the Indo-Greek rulers, especially large silver, must be placed in Gandhāra, which has been called a kind of new Hellas (Tarn, p. 135). Virtually all the Apollodotus money belongs to Apollodotus II, who is admittedly an eastern king; the power of Apollodotus I lay mainly west of the Indus. One type of Antialcidas (no. 74, of copper) probably originated in the Taxila region because of style and monogram.

In the matter of monograms we have progressed from the attitude of Cunningham to that of Dr Tarn, who sees no reason to suppose that Bactrian and Indian monograms ever denote mint cities (*op. cit.* p. 439). The truth probably lies between these two views. Dr Tarn's argument is sound: that the interpretation of the monograms as those of many different cities postulated an incredible number of mints; it is likely that there were few regular Greek mints in the Farther East. Tarn names Bactra, Alexandria-Kāpiśī (Begrām near Kābul), Pushkalāvatī in Gandhāra (Chārsada), and one in the Eastern Punjab, presumably Sāgala (Sialkot); 'a fifth, Taxila, is morally certain'.[2] He is talking of the regular royal mints; no doubt any city with a Greek community could produce coins of some sort, if the political situation required it (*op. cit.* p. 438).

Coin-type of Taxila

Dr Tarn noted (p. 163) that one of the great difficulties in reconstruction has been that the coin-type used by the Greeks for Taxila was unknown. A modern view is that it was the *pilei* of the Dioscuri; but this seems very conjectural.[3] Dr Tarn adds that the Taxila type ought to be discoverable on Taxila's own coinage. 'That coinage uses several types, among them the lion and the humped bull, but infinitely the commonest type is the elephant; indeed, the elephant, though a common type on early Indian coins, is so particularly associated with two towns, Eran and Taxila, that it has been thought to possess a local significance.' Dr Tarn suggests that the elephant is the missing type of Taxila on Greek coins, though he adds that there is a difficulty in invoking the aid of the

[1] Gandhāra is taken to be the region west of the Indus, lying between it and the Paropamisadae (Tarn, *The Greeks in Bactria and India*, p. 135).

[2] We must also take account of a possible Greek mint in Arachosia, where the Śakas subsequently had one.

[3] Because Antialcidas is known from the Besnagar inscription to have reigned at Taxila, and the *pilei* are his usual copper type.

elephant in placing the coins of Apollodotus I at Taxila. There can be no certainty in the matter, yet Dr Tarn alludes elsewhere in his book to 'the elephant of Taxila'. This may be so, but the elephant is found on no more than three of Allan's nine classes of local Taxilan money (*B.M. Cat. Anc. Ind. Coins*), and on 47 of the 171 specimens described. As regards the statement about Eran and Taxila (*ibid.* p. xxvi), Dr Allan has modified his opinion. The elephant and the humped bull are the Indian animals *par excellence*, and constantly recur on many series of the coins of ancient India; neither can be assigned precisely as the particular mark of any one mint. The matter would admit of no doubt if the Greeks had adopted the well-known Taxila mark, or perhaps if they had reproduced the deity of whom it is tempting to think as the city goddess of Taxila (*ibid.* pp. cxxvii, 221 and p. 758 *supra*).

Shape and style of Greek coins of Taxila

What they did derive from Taxila was the square shape. Again, the coins of any one king, even of Antialcidas, do not preponderate in the yield from Taxila. As regards style, the great majority of the silver issues of Heliocles, Lysias, Antialcidas, Strato, Archebius, Philoxenus and others down to the best coins of Hermaeus are alike in this respect; by provenance and monogram they belong west of the Indus. The case is much the same with copper, but more Gandhāra copper coins travelled east of the Indus because apparently Taxila used little or no silver. The problem in our present state of knowledge of the Greeks unfortunately does not admit of an exact solution. Still, it is possible to say that certain issues were coined east of the Indus, presumably at Taxila and at Sāgala. There is the money of the acknowledged eastern rulers Apollodotus II (omitting his large silver), Zoilus Soter, Dionysius, Apollophanes, late Strato I, Strato I with Strato II. What may be called the small change of the period of a local character must have been coined at Taxila, for examples nos. 45, 47, 49, 50, 63, 96, 105. Coin no. 104 belongs to this category but it bears the Sāgala mark.

Taxila coinage of Śakas and Parthians

We are on firmer ground with the Śakas and Parthians (Indo-Scythians and Indo-Parthians). Sir Alexander Cunningham (*Num. Chron.* 1890) placed Maues and his successors, Azes and Azilises, in the Western Panjāb with their capital at Taxila. 'It is certain that the coins of Moas (Maues) are found only in the Panjāb, not a single specimen to my knowledge having been found in the Kabul valley' (*ibid.* p. 104).[1] Maues' silver had been found at Mansehra in Hazāra. Taxila is said to have been the capital of the extensive empire of Gondophares. Once more there is little positive evidence outside the coins themselves, but the money of Azes I, Azes II and of the Gondophares Dynasty has been found in great abundance at Sirkap; there are very few pieces of Azilises because he actually struck less. For a typical distribution a reference is invited to Sir John Marshall's elaborate and valuable description of the 454 specimens found at Sirkap during the season 1929–30, showing the findspot and type of each coin, in *A.S.R.* (1929–30), pp. 73–85; apparently all are copper except the silver Telephus. There are twenty-four Indo-Greek coins before Hermaeus, and twenty-one of Hermaeus. Cunningham was much influenced by his assertion that Masson had recorded the

[1] But see *J.A.S.B.* (1836), p. 26, no. 27.

important fact that not a single coin of Azes was obtained from Begrām (*ibid.* p. 110). But Masson did in fact get coins of Azes and Azilises at Begrām (*J.A.S.B.* 1834, Pl. x, 31, 33; Pl. xi, 45, 47; two plates of coins of 'Azus', Pls. xxii, xxiii, illustrating James Prinsep's paper in *ibid.* 1835, some of which are definitely referred to Masson). The name Azes was first read on a coin from Kābul (*ibid.* 1835, p. 343), and there is Masson's own coin of Azilises (*ibid.* 1836, Pl. ii, 16). In Masson's *Second Memoir on the Ancient Coins found at Begram*, we find mention of Azilises, also of Azu I, II (*J.A.S.B.* 1836, p. 19)—a remarkable anticipation!

Modelled on Greek prototypes

The money of Maues is modelled on that of the Greeks; the earlier pieces have one Greek monogram, while Kh. marks are introduced later on as single characters. The piece, *P.M. Cat.* Pl. xi, 187, of good style with a single monogram, must be one of the first issues of Azes I; soon the monogram was accompanied by a Kh. *akshara* as on the reverse of Pl. xi, 36, or by a Kh. monogram as on Pl. xi, 172. The scheme is much the same on the money of Azilises; sometimes there is a monogram of the type used by the Greeks on the obverse and two Kh. characters on the reverse (Pl. xiii, 320). The matter becomes more complicated under Azes II, as illustrated by the very abundant Zeus Nikephoros type listed in *P.M. Cat.* pp. 106–12; there is usually a Greek monogram but the Kh. marks constantly change. A coin may have a Kh. monogram on the obverse while the reverse contains two Greek monograms and a Kh. character. The piece of Aśpavarma as *strategos* of Gondophares (*ibid.* Pl. xv, 35) has no less than five marks on the reverse, all Indian except one. Taxila is held to have been the capital of Gondophares; we want an analysis of his monograms and marks based on ample material. A coin of Abdagases like Pl. xv, 64 has two Greek monograms and a Kh. *akshara*, which is changeable. This marks the end of the Greek monogram. It is clear that the Śakas and Parthians gradually changed the system of the Indo-Greeks. We know that Indian rulers authorised agents outside the royal mints to issue coinage, such as self-governing communities or guilds of merchants.[1] In Śaka times there seems to have been a revival of the indigenous system, perhaps a multiplication of smaller mints or of minting centres in the same large city. Dr Tarn has an interesting reference to city fortunes on Śaka coins (*op. cit.* p. 353). He holds that a city goddess can only appear on a coin struck in a Greek *polis*; he says there is no reason to suppose that Taxila was ever a *polis* (p. 159), so the city on the coins of Zeionises must be Pushkalāvatī and not Taxila (p. 353). This point, in the circumstances, is not conclusive. Greek rule had ended; whether the Śakas and Parthians would observe such conventions is more than questionable.

City fortunes

Coin mould of late Śaka period

In 1912–13 a number of earthenware moulds for casting coins were found in a room or shop in Block L in Sirkap. The moulds are circular flat plates, 4 in. in diameter, containing six to twelve impressions on each plate. The coins, of which the impress is clear in many of the moulds, comprise issues of Maues, Azilises (with Azes) and Azes II.[2] It is suggested by Sir John Marshall that the moulds probably

[1] D. R. Bhandarkar, *Lectures on Ancient Indian Numismatics* (1921), pp. 5–11.

[2] See vol. i, pp. 177–8.

belonged to the plant of some forger of the Parthian period. K. P. Jayaswal announced the discovery of what he called an ancient mint in *J.B.O.R.S.* (June 1936), vol. XXII, pt. II; hundreds of moulds to cast Yaudheya coins had been found on the outskirts of Rohtak in the South-East Panjāb. The patterns were pressed into the flat surface of circular clay disks; there are eight impressions stamped round the central aperture with a channel running to each. Apparently these plates were clamped together in columns, and molten metal was poured down a central hole. The type of coin is *C.A.I.* Pl. VI, 2, placed in the first century B.C. The disk illustrated in Pl. II of Mr Jayaswal's paper resembles those at Taxila. An article in *Num. Chron.* (1871), pp. 28, *f*, entitled 'Earthen Coin Moulds', describes the same method to produce or reproduce Roman coins. The coins of Azes II, visible on Pl. 136, *p*, *q*, *r*, are the abundant base-metal types in the small size, Zeus Nikephoros and Pallas to r. (*P.M. Cat.* Pl. XI, 122 and 158). The latter has an Indian symbol, the *nandipada*, to l., and to r. the Indo-Scythian mark (*ibid.* p. 218, no. 16). The *nandipada* is found on many series of ancient coins; it cannot be a mint mark on the money of Kadphises II. Neither mark alone need indicate Taxila, but this combination may do so. It occurs on such pieces as *ibid.* Pl. XII, no. 252 (Azes II), no. 317 (Azes and Aśpavarma), Pl. XV, no. 35 (Gondophares and Aśpavarma), *I.M. Cat.* Pl. IX, 9 (Gondophares and Sasan). But there is also some reason for placing these coins west of the Indus (*Num. Chron.* 1944, p. 104).

Kushān and later coins

The coins of Sirkap virtually terminate with the advent of V'ima Kadphises (II). There has not been much excavation at Sirsukh but the sites of adjacent monasteries and stūpas have yielded plenty of copper Kushān money with Indo-Sasanian and medieval coins. We know nothing of the Kushān mints beyond the fact that the output of copper money of the Great Kushāns was so prodigious that North-West India is still full of it. Kushān gold was not ordinary everyday currency; it seems to have been used as a convenient means of hoarding. A hoard of a thousand gold pieces of Kanishka, Huvishka and Vāsudeva was found at Peshāwar some sixty years ago (*J.A.S.B.* 1881, p. 184), of which Cunningham saw upwards of six hundred specimens. I have little doubt that a great part of the superb British Museum gold of the Great Kushāns was chosen from this hoard. The Indo-Sasanian pieces do not include the common Napki Malka coins so characteristic of the Kābul region (*I.M. Cat.* p. 235). Masson called the broad thin silver pieces of the Ephthalites 'tope coins'; at Taxila they also come from stūpa and monastery sites. Taxila was finally destroyed by the White Hun invaders; the pieces of the Hindū kings of Ohind provide testimony to continued occupation of certain areas.

Early and Indigenous

No. 1. The king on this worn Persian *siglos* holds a dagger in his right hand, and there is no indication of a waist; the date is *c.* 400 B.C. Cf. Pl. XXVI, *B.M. Cat. of Greek Coins of Arabia, etc.* (1922). The piece cannot be attributed to an individual king, *ibid.* p. CXXXV, but the period is that of Artaxerxes II.

No. 2. Mr E. T. Newell has assigned this Alexander tetradrachm to the mint of Myriandros

in Northern Syria, Myriandros-Alexandria Katisson, *American Journal of Numismatics*, vol. LIII. The obverse is like Pl. II, 9, while the new reverse die resembles Pl. II, 13, 14.

No. 3. The symbols are uncertain; the style of the obverse suggests the Babylon mint.

No. 4. This tetradrachm of Philip III belongs to a well-known Babylon type. Cf. no. 4609, p. 64, *Numismatic Notes and Monographs*: no. 19 (Alexander Hoards), New York, 1923; Mr Newell dates it to 320–319 B.C.

Nos. 5–38. The accepted identification of indigenous Taxila money has been amply confirmed by actual discovery on the spot. A reference is invited to *C.A.I.* and to the full and up-to-date treatment in *B.M. Cat. of Coins of Ancient India* (1936). Single die, double die and cast coins are figured. We want more and better specimens of the scarce, inscribed types of which the only representatives here are no. 10 of the *paṁcanekame* class (*B.M. Cat.* §149) and no. 31 whose legend is uncertain (*ibid.* § 154 and Pl. XXXIV, 4, 5, 7), though Mr K. P. Jayaswal read on it the name of the Maurya king Daśaratha (*J.B.O.R.S.* 1934, p. 285), a highly speculative interpretation. No. 16 is a good specimen of the rare piece with the elaborate picture of a sacred tree and its worshippers. Cf. *B.M. Cat.* Pl. XLV, 2. The single die humped-bull coins are new.

No. 39. The gold stater with the portrait and reverse design of Diodotus I, but the name of Antiochus II, is placed by Mr E. T. Newell at the Bactra mint (*The Coinage of the Eastern Seleucid Mints*, New York, 1938, Pl. LIII, 15). The piece illustrated by Mr Newell has a similar cut on the obverse.

No. 42. This large copper piece of Demetrius probably weighs some 360 gr., the equivalent of 2½ *panas* on the indigenous standard; two other specimens obtained by me at Attock in the year 1911 were said to have come from a local site, so the type may have been an eastern one and possibly associated with the river Indus. Otherwise there is no numismatic support of Dr Tarn's suggestion (*op. cit.* p. 137) that Sirkap was founded by Demetrius; the 'elephant's head' copper issue of Demetrius is associated by its monogram with the Kābul region.

Nos. 46–8. This Taxila piece appears to be the original copied by Agathocles on nos. 43–5 (*B.M. Cat.* p. cxxxii). Both issues exhibit the word once read as *hitajasame*, 'good-fame-possessing' (*P.M. Cat.* p. 18), but now amended by Dr John Allan to *Hirañasame*, 'the Golden Hermitage', a reading confirmed by no. 47. This place-name interpretation goes against Dr Tarn's argument (p. 160) that Agathocles did not rule at Taxila. Sir John Marshall has pointed out that the plant design, also seen on no. 13, which may be called the 'Lotus tree', is a conventional representation of the Buddhist 'Tree of Life and Fortune'.

INDO-GREEK

No. 49. This is a coin of Apollodotus II; it is later than Apollodotus I, and belongs to the Taxila region.

No. 50. The combination of Apollo and elephant indicates that this is a piece of Zoilus Soter of the new type published in *Num. Chron.* (1940), p. 111.

Nos. 51–7. These coins of Menander exhibit four out of the very few silver pieces of the Indo-Greeks found at Taxila, all of the small size. They do not include the remarkable 'Wheel and palm' copper coin of *B.M. Cat.* (1886), Pl. XII, 7, described in *A.S.R.* (1928–9), p. 65, the second known specimen; the first was got by Masson at Begrām a century ago (*J.A.S.B.* 1836, p. 22). It belongs to the least copper denomination of the Indo-Greeks, called by Cunningham a hemi-lepton (*Num. Chron.* 1873, p. 8), with a theoretical weight of 16·8 gr.; for the possible significance of the types, see Tarn, p. 263. Major-General H. L. Haughton has a specimen of no. 51 which weighs 14 gr. Another example is the coin of Artemidorus, *J.A.S.B.* (1910). p. 560.

No. 58 is a poor specimen of the very rare 'Apollo and quiver' type of Strato (*B.M. Cat.* 1886, Pl. XI, 2).

Nos. 63, 64. These lead coins of Strato I or Strato II cannot be separated by any long interval from the lead money of Rājuvula, no. 176, and like the latter were almost certainly struck at Taxila.

No. 66. This coin of Eucratides is reckoned to be the prototype of the '*pilei* and palms' copper of Antialcidas. Very few coins of Eucratides have come from Sirkap, apparently only three of the very common type no. 65; in this respect there is a great contrast with Begrām, where Masson got 269, nearly all of type no. 65.

No. 67. This is a barbarous imitation in copper of the Attic silver of Heliocles, *P.M. Cat.* Pl. III, 133; the standing deity is usually replaced by a horse, which is derived from the money of Parthia. Cf. no. 123. Cunningham attributes these rude copies of Bactrian money to the early Indo-Scythians, who had conquered the countries on the Oxus where the pieces are usually found (*Num. Chron.* 1889, p. 302).

No. 70. This is a new variety of the rare 'Elephant and bull' copper of Heliocles (*P.M. Cat.* Pl. III, 149), the elephant being to left instead of right.

Nos. 72–4. Although Antialcidas is called king of Taxila in the Besnagar epigraph, the only type which by style and monogram can be placed with any certainty east of the Indus is no. 74. Cf. *P.M. Cat.* Pl. IV, 212.

Nos. 75–80. These are all the known kinds of Archebius copper money; the owl is like that of the silver and copper of Menander. The '*pilei* and palms' type is a link with Antialcidas and so possibly with Taxila, though the monograms in my opinion place it west of the Indus. The important piece is no. 76, an overstrike by dies of the square '*pilei* and palms' type no. 78 on a round Strato coin of the 'Apollo and quiver' type no. 58; it is a freak, not a new variety, but it shows that Archebius followed Strato as well as Heliocles (*P.M. Cat.* p. 39, no. 230), since it is unlikely that the coin of a contemporary ruler struck in the same region, probably Pushkalāvatī, would be used as a blank.

No. 86. This is a nice specimen of the very scarce coinage of Theophilus, whose types are Heraclean. The silver coin, *P.M. Cat.* Pl. IX, viii, still remains unique; the piece in the Indian Museum, Calcutta, *I.M. Cat.* Pl. VI, 8, is a cast of that specimen.

Nos. 87–91 are all of Apollodotus II, the first two of the very rare 'Apollo enthroned' type; no. 88 has the same marks as *Num. Chron.* (1870), Pl. X, 12.

No. 92. The round copper coins of Hippostratus of this type are much rarer than the square, and of different style; both issues are linked by monogram with the money of Azes I.

Nos. 93, 94. The first silver coin of Telephus was obtained at Peshāwar (*J.A.S.B.* 1842, p. 133). It is in the Ashmolean Museum, Oxford. The two specimens at Berlin (*Zeitschrift für Numismatik*, Berlin, 1879, p. 329) are doubtfully genuine; so no. 94 is the second specimen found in a century. Telephus was the patron hero of Pergamon in Asia Minor, and the contest between gods and snake-legged giants is pictured in the Pergamene frieze, *c.* 180 B.C. But in the present case, as pointed out by Sir John Marshall, the giant holds a lotus stalk in each hand, while the legs terminate in lotus flowers and tendrils; he is in fact a lotus *yaksha*. Sir John has shown that such *yakshas* are commonly portrayed in sculptures of the Early School, though growth from the legs instead of from the mouth or navel is an Hellenistic idea, not Indian. No. 93 is a nice specimen of the copper coin published in *J.A.S.B.* (1910), p. 561. The figure on the reverse wears a conical cap (*pilos?*), and the epithet *Kalanakrama*(*sa*) is clear = *Kalyāna-krama*, 'of beautiful gait', 'of good conduct', though one would expect *Kalanakarma* as the exact equivalent of *euergetes* = 'benefactor'. It may be added that one more type of Telephus's copper money was published by Vincent Smith in *J.A.S.B.* (1898), p. 130; a duplicate of this piece belonged to the late Mr W. S. Talbot, I.C.S. The two monograms of Telephus are found elsewhere only on the money of Maues, both occurring on the Poseidon issue, *P.M. Cat.* p 100, no. 20. Cf. *Num. Chron.* (1923), p. 337. Dr Tarn, for reasons of type, makes Telephus a king of Kāpiśa (p. 497); provenance places him in the region of Pushkalāvatī and Taxila.

Nos. 95–101. The Nike type of Hermaeus will repay intensive study. It has been found in large numbers at Taxila; only one specimen was obtained by Masson at Begrām (*Ariana Antiqua*, p. 339 and Pl. v, 15). A reference is invited to *P.M. Cat.* pp. 84, 85, 178. There is no attempt at portraiture in types (γ) and (ε), which are usually of rude style and fabric; the obverse, both bust and legend *sterossu*, is reproduced on the initial Kushān money. On these Nike pieces Hermaeus is called 'king of kings', and is the only Indo-Greek after Eucratides to use this title. The prototype may be the Nike coin of Eucratides (*B.M. Cat.* 1886, Pl. xxx, 12), which is the only other Indo-Greek piece with the Kh. legend 'king of kings'. Dr Tarn has remarked on the late date of these pieces which cannot be Hermaeus's own currency (Tarn, p. 504; see also p. 764 *supra*.).

No. 104. The 'Apollo and diadem' type is known only of Apollodotus II and Dionysius; the name is illegible on this specimen. It is a new variety, since the obverse bears a monogram which in this case happens to be the mark associated with Sāgala.

Nos. 105–8. Of these coins of Zoilus Soter, the first belongs to the Taxila region associated with Azilises, while the drachms bear the Sāgala mark, also the trident-axe, a symbol of the Audumbaras (*B.M. Cat.* p. lxxxiii), which recurs on the gold coinage of Kadphises II (*P.M. Cat.* Pl. xvii, 34).

No. 109. This is an indigenous coin of the Rājanya clan, and resembles *B.M. Cat.* Pl. xxix, 19. Dr Allan, on grounds of provenance, is inclined to place the tribe in the Hoshiarpur region of the eastern Panjāb. Cf. *I.M. Cat.* p. 165.

Śaka and Parthian

Nos. 111–31. Most of the known copper types of Maues are represented; their significance remains matter for speculation, though the type of Poseidon trampling on a river-god may point, as suggested by Raoul Rochette, to a victory on the Indus (*Num. Chron.* 1890, p. 105). No. 123 is a new variety of the 'Horse and bow-case' money; the designs are to left instead of to right. Both horse in this attitude and bow-in-case are copper types of Parthia (*B.M. Cat. Parthia*, 1903, p. lxxi). This Parthian horse is also found on the ancient imitations of Heliocles; cf. no. 67, made by the Śakas in the Oxus region. On Parthian money the horse begins in the time of Phraates II, 138–127 B.C. (*ibid.* Pl. iv, 10, 11). A good example of Mithridates II (123–88 B.C.) is Pl. vii, 1. The bow-in-case dates from the period of Mithridates I, 171–138 B.C.

The copper fragment, no. 126, may be of the silver type, *P.M. Cat.* Pl. x, 3; if so, it is a novelty. Nos. 127 and 128, as shown by the monogram, are probably of Azes I. Cf. *J.A.S.B.* (1910), Pl. xxxiv, 14. The reverse side of no. 131 exhibits a typical picture of an Oriental potentate holding a weapon across his middle and seated on a throne or cushion; cf. the Azes coin *P.M. Cat.* Pl. xi, 195. Dr Tarn contends that this figure is Buddha (*op. cit.* p. 402). Prof. J. Ph. Vogel informs me that it has neither the attitude nor the attributes of the Buddha. This is also true of the figure on the small copper coins of Kadaphes, no. 241. So the representation of the Buddha on coins cannot be placed before Kanishka. Cf. no. 261.

Nos. 136, 137. More than 800 specimens come from Sirkap; this type of Azes must have been coined at Taxila in great numbers over a long period. The marks recur on the money of Gondophares with Sasan, e.g. *P.M. Cat.* Pl. xv, 20, 34.

Nos. 141–5. No. 141 is a rare piece of unusual style. Cf. *P.M. Cat.* p. 131, ii. No. 143 repeats a type of Maues; it is the coin sometimes overstruck on pieces of Apollodotus II and Hippostratus (*ibid.* pp. 122, 123). No. 145 is undoubtedly of Taxila mint; the lion reappears on no. 176, the Taxila money of Rājuvula.

Nos. 156, 157. A resemblance has been seen with the goddess on the local Taxilan money (*B.M. Cat.* Pl. xxxii, 5, 6), though the Azes deity stands on a lotus. Both marks on the obverse are unusual; the suggested lion on *B.M. Cat.* (1886), Pl. xix, 5, does not exist.

Nos. 158, 161. There can be little doubt that no. 158 a base-metal type of Azes II, was coined abundantly at Sirkap, especially the pieces with this particular mark. No. 161 is a nice specimen of the joint type in copper of Azilises and Azes published in *J.A.S.B.* (1910), Pl. XXXIV, 16, though of much inferior style.

No. 163. This beautiful little coin of Azilises is the first piece of its size to be found of the new type published in *White King Sale Catalogue* (Amsterdam, 1904), pt. I, no. 299. The obverse design has been called Lakshmī standing between two elephants. Actually it appears to be a male figure seated on the central of three elephants: he poises a weapon in the right hand and holds out a bow in the left hand. The reverse shows a city Fortune carrying an object, as on *P.M. Cat.* Pl. XIII, 339, and discussed at p. 132; the Kh. monogram occurs on the silver Azilises piece, *ibid.* Pl. XIII, 329.

No. 164 is of coarse style and is double struck.

Nos. 165–7. No. 165 is a specimen of the very rare type 'Coins of the Śakas', *Num. Chron.* (1890), Pl. VIII, 6. A comparison with the unique silver coin of Maues, *P.M. Cat.* Pl. X, 4, shows that the designs of both pieces are alike in conception but differ in execution; the club-like object carried by the 'Victory-bearing god' of the Azilises coin is a misunderstood sceptre, which is also true of the piece, *ibid.* Pl. VIII, 7. No. 166. The obverse figure closely resembles that of the Menander copper coin, *ibid.* Pl. VI, 515. No. 167 is a common silver type struck in copper, perhaps in order to be plated; for the object carried on the outstretched right hand, see *ibid.* p. 132.

Nos. 168–73. These small pieces fall into the following groups: nos. 168, 172. The Kh. legend is *Indravarmaputrasa Aśpavarmasa strategasa*, written continuously round the coin, and the designs are those of the known type of Azes and Aśpavarma, *P.M. Cat.* Pl. XII, 317; the reverse marks are: to left, *maṃ*, as on the coins of Hippostratus, *ibid.* Pl. VIII, 610, and of Azes I, *ibid.* Pl. XI, 36, also as on *ibid.* Pl. XVI, 138; and to right, mark as on coins of Zeionises, *ibid.* Pl. XVI, 82, 84. Nos. 170 and 171 are a separate pair, while no. 169 is again different; all three are illegible. No. 173 reads *Iśpava* . . . and there may be a name or title in the exergue. A piece like no. 173 is in the Fitzwilliam Museum, Cambridge.

Nos. 174, 175. The coins of the ruler whose name has been read as Heraus or Miaus have been much discussed; references are given on pp. 9, 10 of E. J. Rapson's *Indian Coins*, Strasburg, 1898. Recent accounts are Prof. A. N. Zograph's *The Coins of Heraus* (Tashkent, 1937), and the concluding half of Dr Tarn's Appendix 17 (*op. cit.* pp. 505–7). The money of Heraus is altogether exceptional, as it consists entirely of tetradrachms and obols, both represented here. A reference is invited to *Num. Chron.* (1940), pp. 120 f. There is good reason to agree with the Russian authorities in placing Heraus, not south of the Hindu Kush, as suggested by Dr Tarn, but north of it in Bactria or Sogdiana.

Nos. 176–81. Sir John Marshall records that 158 specimens of the lead 'Lion and Heracles' issue of Rājuvula (Rājula) were found in Sirkap; the wide domain of this great satrap of Mathurā certainly extended to Taxila, and this lead money must have been struck there. A reference is invited to *P.M. Cat.* p. 166 and *B.M. Cat.* p. cxv. The issue resembles that of Azes II exemplified by no. 145; the degree of similarity is shown by the fact that a piece of Azes II of this type was included by inadvertence in *ibid.* Pl. XLIV, 5 as an issue of Rājuvula.

No. 182. That Rājuvula was a Śaka, not a Parthian (*B.M. Cat.* p. cxiii), and that he ruled at Taxila are fully confirmed by the unexpected discovery of a coin of the 'Zeus Nikephoros' type so characteristic of Azes (*P.M. Cat.* Pl. XI, 56). This nice piece has the name Rājuvula in full; the first title is clearly *chatrapa* . . . .

No. 184. This is a direct imitation of a drachm of Zoilus Soter or Apollodotus II struck by an Indian ruler Bhadrayaśa; it was first published by E. J. Rapson in *Corolla Numismatica* (Oxford, 1906), p. 258; see also *P.M. Cat.* Pl. IX, ix.

Nos. 185–8. These pieces much resemble nos. 169–71 and are of similar type and period to

the money of Aśpavarma. Sir John Marshall has recently suggested an amended reading *Iṁdravasa* which in its turn recalls the name Iṁdravarma, father of Aśpavarma. A piece not represented in these plates is *A.S.R.* (1912–13), Pl. XL, 23, which reads with moderate clearness 𐨟𐨿𐨪𐨯𐨀𐨁𐨟𐨿𐨪𐨬..., ...*trasa Itrava*.... It is suggested that this particular piece may be an issue of Indravarma. The other coins may not be so, but some look like rude copies.

No. 190. This is the important coin which shows that Aśpavarma, the *strategos* of Azes II, was subsequently *strategos* of Gondophares. The horseman is to left, and in the left field is the Gondopharian symbol, obliterated in this specimen. There are five marks on the reverse. The Kh. legend is arranged in a manner peculiar to this issue; from six o'clock, *jayatasa tratarasa* (inwards), *strategasa* (outwards), *Iṁdravarmaputrasa* (inwards), *Aśpavarmasa* (outwards). Ludwig Bachhofer places this piece at the beginning of Gondophares' reign and remarks that it is very unfortunate that the coin has an illegible Greek legend ('On Greeks and Śakas in India', *J. Amer. Oriental Soc.* (December 1941), p. 233). He also remarks on the excellence of the design as compared with others of the period; the standing figure on no. 209 is quite as good.

No. 191. This coin of Gondophares with Sasan is the prevailing type at Taxila; nearly 250 were found at Sirkap compared with a score of the 'Bust and Nike' copper money exemplified by nos. 192–4. On the other hand, the latter are described as numerous at Begrām (*J.A.S.B.* 1835, p. 346).

Nos. 195–8. Eighty-two specimens of this small copper issue of Gondophares come from Sirkap; it is a very common coin and must have been struck at Taxila. As regards Vincent Smith's remarks (*I.M. Cat.* p. 56), the pieces differ from those of Rājuvula (no. 183) both in style and fabric, while any Arsacid resemblance is due to the prominence of the beard.

No. 199. This type of Abdagases resembles no. 191 in design, style and fabric; both coins belong to Taxila mint.

No. 200. The money of Zeionises is reported rare at Taxila, though he certainly reigned there or thereabouts. Masson did not find his currency at Kābul; the only piece figured in *Ariana Antiqua*, Pl. VIII, 17, belonged to General Court, who collected around Rāwalpindi and Peshāwar. The silver *askos* legend (pp. 56, 61, 156 (17) *supra*), as restored and translated by Sten Konow, reads 'of Jihoṇika (Zeionises), satrap of Chukhsa, son of (Maṇigula), brother of the Mahārāja'. Konow surmises that this 'great king' is Kadphises II. The coins make this suggestion impossible, and Sir John Marshall regards Zeionises as a Śaka living in Parthian times. The satrapy of Chukhsa has been identified with the modern Chach, which lies between Taxila and the Indus; as a satrapy it probably exceeded this limited area and may have extended west of the Indus (pp. 48, 61 *supra*). Dr Tarn holds that the type of no. 200 must belong to Pushkalāvatī (p. 353). This may be the case, since so few pieces have been found at Taxila.

Nos. 201–21. These coins are entirely new. Twenty-one silver coins were found together in a jar at Sirkap (pp. 161–2 *supra*) and were adequately described in *A.S.R.* (1912–13); two more of the same series subsequently came to light, one in Sind (*ibid.* 1914–15, p. 95) and the other at Sirkap itself (*ibid.* 1929–30) with eleven specimens of a smaller and different kind (no. 209), which will be discussed separately. Dr John Allan has scrutinised the photos of these pieces, and the following is our joint opinion. In every case the die is too large for the flan. All bear the symbol of Gondophares on the obverse and a single Kh. mark on the reverse, in most cases *bhu*, being distinct in both respects from the coins of Pacores (*B.M. Cat.* 1886, Pl. XXIII, 8), as the latter usually have a star on the obverse and two Kh. marks on the reverse. The Nike, a favourite Indo-Parthian type, is unusual, as she is helmeted like Athena. The bust is to left as on Parthian money and is helmeted, another difference from Pacores. E. J. Rapson held that these coins portray Gondophares and Pacores (*C.H.I.* I, p. 580), an opinion founded presumably on style and facial resemblance, but there is no more than a family likeness. The Greek legend is uncertain, but what can be seen on nos. 201, 203 (an overstrike) and no. 211 indicates that it is quite short and that it is not the inscription on the money of either Gondophares or

Pacores. The portraits are remarkably fine and characteristically Parthian; they are those of the individual kings named on the reverse side. The coins are the issues of successors of Gondophares, but it is unlikely that they were struck in the Taxila region. Nos. 201–7. On the helmet is a mark like ♉; the full inscription is probably *Maharajasa Aśpa(bhratаputrasa) tratarasa Sasasa*. We should appreciate finer specimens, but on the face of it these are coins of Sasan as nephew of Aśpa, who it is reasonable to suppose is the same person as Aśpavarma, the *strategos* of Azes II and later of Gondophares. The portrait is new. No. 210 is copper and differs from the others; Nike is facing. No. 211 again portrays a new king with diadem but apparently no head-dress. There is a compound monogram on the reverse, whose legend seems to read *Rajarajasa tratarasa (dhramiasa)*, and in exergue, unlike the preceding coins ...*bedaṇasa*. The suggested name Sapedanes is not certain. There is the Sandanes mentioned in the *Periplus*, also Labdanes, the nephew of the king in the Acts of Thomas. On no. 212 the head-gear is different; Nike is to right and *bhu* to left, while the name *Aga*...(?) is in the exergue. The Kh. legend of no. 213 is unluckily most difficult to read. Nos. 214–16 are much alike and appear to be pieces of yet another new king; the head-dress of no. 216 has a star-like decoration, while Nike is to left and *bhu* to right. At ten o'clock of the obverse we have ....ΩCΔO..... No. 217. The head-dress resembles that of no. 216 but the portraiture is different; Nike is to right and *bhu* to left. The Kh. legend begins at the top with *Maharajasa* and runs round the coin to end with *Satavastrasa*; the name is probably Iranian. Nos. 218–19, a pair from very similar dies, resemble no. 217 but the name *Satavastra* is at ten o'clock. Nos. 220 and 221 are again different from the foregoing, the reverse resembling no. 212; unfortunately they are illegible. Nos. 209, *a*, *b*, *c*. These remarkable silver coins are quite new. Cf. *A.S.R.* (1929–30), p. 62. Attention is drawn to the elegance of the designs. The horseman to left resembles that on no. 190. The standing goddess holds an uncertain object in her raised right hand; on the left is the monogram ⚲ and to right ✱, possibly a trident above stylised Kh. *go*. The fact that the pieces are without legend recalls the Soter Megas type no. 250, with which they are best compared as regards design and style and beaded border.

KUSHĀN

Nos. 222–39. The copper coins of Kujūla Kadphises (Kadphises I) are illustrated in typical variety; they abound at Sirkap, also in the Kābul region, where they offer many varieties of degenerate workmanship (*Ariana Antiqua*, p. 310). This money is found in such large numbers at Taxila that it is impossible to believe that they could have resulted from mere commercial intercourse. Only four out of some 2,000 specimens have the bust to left, instead of right, viz. nos. 231–4. No. 225 is *A.S.R.* (1912–13), Pl. XL, 48, a late and barbarous model; the Kharoshṭhī legend can be read in a mirror. As regards the 'Bull and Bactrian camel' money, a type by the way which must be later than the ubiquitous 'Heracles' copper because it exhibits the superior title *Maharaja rajadiraja* (*P.M. Cat.* p. 180), an exceptionally good specimen like no. 235 shows that the type is modelled on the round copper money of the satrap Zeionises (*ibid.* Pl. XVI, 84), two of the three marks being in common. The latter in its turn is based on the similar type of Azes, as exemplified by no. 148. A reference is invited to the note on no. 200.

Nos. 240–8. Seventy-eight specimens of this type of Kadaphes were found at Taxila, where they must have been struck; they are nearly always in bad condition. The stiff, seated figure has been called Buddha, but this is almost certainly incorrect. The conical knobbed cap and the weapon in the raised right hand are not attributes of the Buddha; the figure must be that of the king. See the remarks on no. 131; also Bachhofer, *op. cit.* pp. 229, 230. The obverse Kh. legend is that given at *P.M. Cat.* p. 182. The reverse inscription appears to be Greek and has not yet been elucidated. Cf. *White King Sale Cat.* Pl. IV, 360.

No. 249. Of this type 340 specimens were found; Taxila must have been the mint of this coin of Kadaphes. The mark in the left upper reverse field connects it with the very late type of

Azes II, *P.M. Cat.* p. 122, no. 231. A close resemblance has been seen between the head of the king and that of Augustus on Roman gold coins. Dr John Allan records that the original is more probably a common coin of Claudius, since the reverse type is almost certainly borrowed from Constantia seated on a curule chair, for example *B.M. Cat. Roman Empire*, vol. I (1923), Pl. XXXII, 4; there is no coin of Augustus from which both sides could have been copied—*Cambridge Shorter History of India* (1934), p. 74.

Nos. 252–7. These copper coins are quite new both in kind and denomination. Dr John Allan has favoured me with the following description. Nos. 252, 253, 257 are identical:

Obverse. Kh. legend: *(Raña) Kulutasa Vijayamitasa.*
Reverse. Br. legend: *Rajña Kulutasya Vijayamitrasya.*

No. 254 is in poor condition; the Kh. legend is *(Ra)ña Kulutasa Viraya...* and the name may safely be expanded to *Vīrayaśasa*, the ruler who struck the unique silver coin, *B.M. Cat.* Pl. XVI, 4 and p. 158. No. 255. The symbols on both sides appear to be the same as on the foregoing, but the obverse order is different; the Kh. legend is in a more cursive style, and the name may not be the same. No. 256. The staff on a square base is replaced by the conventional tree in railing. There is no trace of Kh. legend; the name in the Brāhmī legend appears to be *Āryasya*, so the ruler may be Ārya.

These are coins of the Kulūtas (*B.M. Cat.* § 111, and E. J. Rapson, *J.R.A.S.* 1900, pp. 530 f.); they have some symbols in common with the silver piece. The copper pieces, like the silver coin, are exceptionally heavy and there seems to have been some difficulty in manipulating the large dies; their date is about the beginning of the Christian era.

Nos. 258–60. These new and notable coins belong to the same deposit as no. 201, etc., which they closely resemble; the reverse design of no. 221 is repeated facing left on no. 259, and right on no. 260, while the mark is still Kh. *bhu*, indicating the same mint. But the Parthian bust makes way for that of a ruler with Kushān head-dress who has displaced his Parthian predecessor, so is presumably Kadphises I, in which case we see his portrait for the first time.[1] The presumption that the coins belong to Kadphises I is strengthened by the presence of the word ...χοþ..., *Kushān*, on no. 258, a link with the money of Kadaphes (*P.M. Cat.* pp. 181, 182), who is probably identical with Kadphises I. The Kh. legend *Rajatirajasa Kushaṇasa* is clear on no. 259, but there is not sufficient to ensure the reading of the next word as *yavugasa*.

No. 261. The figure of the Buddha as portrayed on coins first appears on the gold and copper issues of Kanishka, cf. nos. 131 and 240. The gold piece is shown at *P.M. Cat.* Pl. XX, vii; it still remains unique. On copper coins Buddha appears seated, as on this specimen (large size only) or standing (large, middle and small denominations); the reverse legend was discussed by Cunningham (*Num. Chron.* 1892). The *ushṇīsha* (head protuberance), long ears and orthodox posture of the legs should be noted. Even the copper pieces are quite rare; out of a find of 482 copper coins of Kanishka made in the North-West Frontier Province (*A.S.R.* 1926–7, p. 216), three were of the Buddha type, two standing and one seated.

No. 269 is a copper Later Kushān piece; the king is not in his usual standing attitude but is seated to front on a large throne.

No. 275. This is a nice silver coin of Kidāra Shāhi, who according to Cunningham founded the kingdom of the Little Kushāns in Gandhāra about A.D. 425 (*Num. Chron.* 1893, p. 184 and Pl. VI, 1). On the obverse is the Brāhmī legend: *Kidāra Kushāna Shā*; below the fire-altar are characters which Cunningham thought were numerals. A recent account based on considerable new material is that by M. F. C. Martin in *J.A.S.B.* (1937), 'Coins of Kidāra and the Little Kushāns'. The author shows that Kidāra's probable date is *c.* A.D. 368, much earlier than 425; the reverse Br. legend has not yet been elucidated.

[1] E. J. Rapson associates these coins with Kadphises II and Taxila, *C.H.I.* I, pp. 581, 582.

Nos. 276, 277. Gupta coins are very rarely found in the Panjāb. There was a notable find of thirty-three gold coins of Samudragupta at Mithathal in Hissar district (*Lahore Museum Report* for 1915–16, p. 12).

INDO-SASANIAN AND MEDIEVAL

No. 278 is a good specimen of the celebrated trilingual coinage of Vāhi-tigīn, which has been much discussed since its first discovery by General Ventura in the Great Stūpa at Manikyāla (*J.A.S.B.* 1834, Pl. XXI). The marginal legends are Brāhmī and Pahlavī; to right of the bust is *Sri Shaho* in Kushān Greek. The deity on the reverse has been called the 'Sun-god of Multan' (*Num. Chron.* 1894, p. 291; *I.M. Cat.* p. 234). A recent discussion is that by Prof. H. F. J. Junker (*Die Hephthalitischen Münzinschriften* (Berlin, 1930), pp. 14, 15). The evidence is reviewed in 'Multan, the House of Gold' (*Num. Chron.* 1937, p. 60); there is no connexion with Multan. The meaning of the marginal legends is still obscure, but the reading 'king of Khurasān' is certain. The piece was struck in the borderlands of India and Iran; the so-called 'Sun-god of Multan' is an Iranian deity.

Nos. 289–99 are Sasanian Kushān coins, and like the preceding pieces are associated with the borderlands of India and Iran; they are numerous at Begrām (*Ariana Antiqua*, p. 403). The bust of no. 290 appears to carry the head-dress of Varahrān II Kushānshāh (Herzfeld, *op. cit.* p. 24 and *Num. Chron.* 1893, Pl. IV, 12). No. 291 is attributed by Herzfeld to a prince-governor Hormizd under Shāpur I, *c.* A.D. 264–72 (*op. cit.* p. 45). No. 299. The design is that of an amethyst seal published by Cunningham (*Num. Chron.* 1893, p. 181 and Pl. IV, 11), who calls it a symbol of Varahrān. Ernst Herzfeld makes this ruler Varahrān II, A.D. 275–92, since he holds that these Kushānshāhs must precede Shāpur II (*A.S.I. Memoir* no. 38, pp. 16, 24, 37).

Nos. 300–13. These White Hun silver coins belong to the thin broad class with a strongly repoussé head which has largely obliterated the reverse design of the fire-altar and its guardians. In Masson's time they were so often found in stūpas or topes that they were called tope coins (*Ariana Antiqua*, pp. 397 f.). The present specimens come from Buddhist monasteries. The legend of no. 300 is Kushān Greek and the coin is very like the Masson piece in *Ariana Antiqua*, Pl. XVI, 19. All the other pieces have Brāhmī inscriptions. No. 302 is a specimen of the Hidda tope coin in *Ariana Antiqua*, Pl. XVI, 8, which has also been published by Cunningham in *Num. Chron.* 1894, Pl. IX, 1; he read the legend as Vaiga or Vanga. The remaining coins have the Ephthalite symbol to left of the bust with the title *Shahi* in Brāhmī; to right is an elaborate club with thongs (cf. *Num. Chron.* 1894, Pl. VII, 13). The names appear to be as follows: nos. 301, 303, 304, 305, 312, Jarusha; nos. 308, 309, 310, Jabula; no. 306, Jatukha; no. 311, Jaruba; nos. 307 and 313 are illegible.

No. 325 is an early cast coin.

Nos. 327, 328, 331. These three lead coins appear to be new. No. 331 is probably Śaka; its Kh. mark occurs on no. 137. Cf. *P.M. Cat.* Pl. V, 344.

No. 332 seems to be a poor Nike Hermaeus, and no. 333 is probably a small Gondophares like no. 197. No. 329 may be a coin of Kharahostes of type like *P.M. Cat.* p. 159, no. 93.

Nos. 342–58. These pieces represent about the last stage in degradation of the Kushān-Sasanian type. On one side is an elementary standing figure and on the other the fire-altar reduced to parallel lines or a square. Nos. 350 and 359 are something like *C.M.I.* Pl. VI, 16; there appear to be remnants of a rude head and fire-altar with large Indian characters.

Chapter 40. TWO HOARDS OF SILVER PUNCH-MARKED COINS FOUND IN THE BHIR MOUND AT TAXILA

A HOARD OF 1,167 COINS OF THE OLDER KIND FOUND IN 1924, AND A HOARD OF 166 COINS OF THE LATER KIND FOUND IN 1913

BY E. H. C. WALSH, C.S.I.

Two kinds of punch-marked coins

PUNCH-MARKED coins are of two distinct kinds. They were cut out of a sheet of hammered silver, to the required weight. The older kind of coins are larger and thinner and were usually cut in approximately rectangular or round form, whereas the later coins, although of the same standard weight, are smaller and thicker, and are rectangular. There is also a definite difference in the nature of the marks on the reverse of these two classes of coins. The difference in the fabric will be seen from the examples given on Pl. 234.

Two hoards of silver punch-marked coins from Bhir Mound

A very important find of 1,167 silver punch-marked coins of the older type was discovered in the Bhiṛ Mound at Taxila in 1924, and another of 166 coins of the later type in 1913. In each case the date of the deposit of the hoard is approximately fixed, as the larger hoard contained two coins of Alexander the Great and one of Philip Aridaeus, all in mint condition, as well as an old worn Persian *siglos*, and the smaller hoard contained a coin of Diodotus II, also in mint condition.[1]

The larger hoard contains coins in new condition and therefore the current coinage at the time of their deposit, and also some very worn coins which must have been of considerable age at the time. Philip Aridaeus died in 317 B.C. This hoard is, therefore, of outstanding importance, owing to the fact that it is possible to determine within narrow limits the date of its deposit and, from it, to arrive at the date of the *latest* punch-marked coins in the hoard, and to estimate that of the older coins as well.

There are no coins of the later kind in the larger hoard, and as the two hoards were both found on the same site and in distinct strata which are respectively dated from other considerations, apart from the dates of the coins of Philip Aridaeus and of Diodotus, it may be concluded that the later coins were first struck some time between the close of the fourth century and the reign of Diodotus.

[1] For the two hoards, see pp. 105–6, 110–11, 751 *supra*, and 853–5 *infra*; and for the Greek coins, cf. R.U.C. ch. 39, nos. 1–4 and 39.

The examination of these two finds has been considered in detail in a separate *Memoir* (no. 59) of the Archaeological Survey of India.

Contents of larger hoard

The larger hoard of the older coins was found in an earthenware *gharā* near the eastern limits of the excavations on the Bhiṛ Mound, about 6 ft. below the present surface. They are of various shapes and sizes. Some are oblong bent bars from 1·25 to 2 in. in length; others are circular, oval, square, rectangular or polygonal, and exhibit an immense variety of punch-marks; others are tiny circular pieces punched on one side only, and so small that one wonders how they could ever have passed from hand to hand and been used as effective currency.[1]

Long-bar coins

There are thirty-three long-bar coins, from 1·25 to 2 in. long. They all bear the same mark on the obverse, which is impressed twice on each coin, one at each end of the bar. This symbol (fig. A at the bottom of Pl. 231) consists of six *vajras* (thunderbolts) or *triśulas* (tridents) round a central circle, from which a straight line also projects, which would appear to be a pole for carrying the emblem, while the mark would appear to represent a standard. This mark does not occur on any of the other coins. The reverses of these coins are blank, but small marks of the same character as the reverse marks on the punch-marked coins have been punched, as countermarks, on the obverse of eleven of the coins, on the blank part of the coin between the two obverse marks. One of these coins weighs 169·5 gr., three weigh 172·3 gr., two weigh 173 gr., twenty-five vary from 174·9 to 177·9 gr., two are over 178 gr., and one coin weighs 179·4 gr. Examples of these coins are shown on Pl. 234, nos. 1–7. There are nine coins of this type in Dr Allan's *Catalogue of Coins of Ancient India in the British Museum*,[2] and nine in the India Museum.[3] As all of these coins, which are of known provenance, come from the area over which Persian influence extended, Dr Allan considers that the date of their issue may well fall within the period of Persian influence in India or in Afghānistān, and would suggest that they belong to the fourth or even fifth century B.C., and considers them to be double *sigloi*, or 'Persian staters'. The similarity of their weight, however, is not sufficient to prove them to be of a Persian standard, as the *Śatapatha Brāhmaṇa* refers to an ancient coin, the *satamāna*, the weight of which was 100 *ratis*, which, at 1·8 gr. for the *rati* gives a weight of 180 gr. These coins, therefore, may be indigenous Indian coins of the Indian standard.[4]

The small countermarks[5] on the obverse of the eleven coins referred to above are shown in nos. i–xvi on Pl. 233. The countermarks on the coins illustrated on Pl. 234 are: on no. 1, v, vii, viii and xvi; on no. 3, iii, viii and xvi; on no. 4,

[1] *A.S.R.* (1924–5), p. 47.

[2] Pp. xv–xvii, clxi, 1, 2.

[3] *Catalogue of the Coins in the Indian Museum, Calcutta*, vol. 1, p. 136, nos. 4–6; and *Supplementary Catalogue* (1923), p. 8, nos. 127–32.

[4] *Ancient Indian Numismatics*, by D. R. Bhandarkar (1921), pp. 56–7. [This explanation, however, is discounted by the fact that these coins were current only in the North-West. Cf. *supra*, pp. 14–15. J. M.]

[5] These may be the marks of the official coin examiner (*rupadarshaka*). [J. M.]

ii, iv, vi, x and xiv; on no. 5, i; on no. 6, xiv and xv; on no. 7, i and ix. It is interesting to note that seven of them, nos. ii, iv, vi, vii, x, xi and xiv, correspond to some of the countermarks on a hoard of Persian *darics* obtained by Mr J. C. Milne in Asia Minor.[1]

Minute coins

There are seventy-nine minute coins. They are of a type which had not until then been found, though coins of this type have since been found at Thathari in the Central Provinces, from which site come the four specimens in the British Museum.[2]

They vary in size from 0·15 to 0·2 in., and in weight from 2·3 to 2·86 gr. The theoretical weights of the silver *kārshāpaṇa* or *purāna*, the silver punch-marked coin, based on Cunningham's estimate of the weight of the *rati*, is 58·56 gr., which is 20·47 times 2·86 gr., the maximum weight of these minute coins.[3] The *Nārada-smṛiti* (App. 57 ff.) states that in the south the *kārshāpaṇa* is a silver coin, and in the east is equal to 20 *paṇas*.[4] These coins, therefore, appear to be silver *paṇas* or *māshas* of 2 *ratis* weight. The *Arthaśāstra* also mentions this weight.

Examples of these coins are given on Pl. 234, nos. 8–23. Most of them bear on the obverse a variety of the six-armed-symbol, as shown in figs. B–F at the foot of Pl. 231, though, owing to their minute size, only a portion of the mark appears on the coin; four bear the 'caduceus' (figs. H and I); one coin bears fig. G; one fig. J, and one fig. K, as shown, though the last two are probably portions of the six-armed-symbol shown in nos. 1, *a–v* on Pl. 231. The fact that these coins bear this symbol links them to the usual punch-marked coinage.

The types may be seen on the following coins: B on no. 13; C on no. 9; D on no. 15; E on no. 10; F on no. 11; H on no. 14; I on no. 19; J on no. 21; and K on no. 22.

Punch-marked coins: obverse marks

The remaining 1,055 coins are of the usual type of punch-marked coins of the older class. They all bear five marks on the obverse, and on the reverse vary from a blank to a considerable number of confused marks on the older coins. The obverse marks occur in fixed groups of four marks together with a fifth mark, which varies. On account of the varying fifth mark the number of marks which occur on the coins is considerable. Including distinct varieties of the six-armed-symbol (Pl. 231, nos. 1, *a–v*), the hare-mark (*ibid.* nos. 4–4, *i*), the hill-mark (*ibid.* nos. 9, *a–f*) and certain other marks, 138 obverse marks occur on the coins, as shown on Pl. 231.

Two marks occur on all the coins, the six-armed-symbol (Pl. 231, nos. 1, *a–v*) and the sun (*ibid.* no. 2). These two marks occur on practically all punch-marked coins, an exception being in the case of a hoard of 1,014 coins found in 1913 at Paila in the Kheri district of the United Provinces, which have been examined

[1] 'A Hoard of Persian Sigloi', by J. C. Milne, in *N.C.* (1916), 4th ser. vol. XVI.

[2] Allan, *op. cit.* pp. lii, 286–7, Pl. XVI, nos. 18, 19.

[3] Even smaller silver coins were struck in the Greek mints at Athens, Aegina, Tegea, Argos, etc. They were known as τεταρτημόρια and ἡμιτεταρτημόρια and were equivalent to ¼ and ⅛ of an obol respectively, i.e. 2·75 and 1·37 gr. [J. M.]

[4] *Antiquities of India*, by L. D. Barnett (1913), p. 207.

by the writer, and are now in the Lucknow Museum, and of certain other coins of a similar type subsequently obtained from that part of India. Those coins bear only four obverse marks and are of a distinct character. They would appear to be the coinage of the pre-Mauryan kingdom of Kośala. Another exception is provided by certain coins of the later class, which would appear to be the most recent of that class, of which there are fifty-two examples in the British Museum.[1]

Marks of general and special significance

The obverse marks on punch-marked coins may be divided into marks of general significance, namely the six-armed-symbol and the sun, which generally occur on those coins wherever they are found, and marks of special significance, which may be divided into locality marks, indicating the area in which the coin is current, and authority marks, indicating the authority by which the coin is issued.

The *Arthaśāstra* of Kauṭilya,[2] written in the Mauryan period, and dealing with matters of the administration of government, in referring to the duties of the 'collector-general of revenue', mentions *rūpika*, the meaning of which appears to be premia or seigniorage on coins. It also enumerates in detail the duties of the 'superintendent of the mint'. It would also appear, from the duties of the 'examiner of coins', that besides the royal mints there were other authorities who were also authorised to issue coinage. These authorities seem to have been the *janapadas*, or self-governing provinces, *naigamas*, or self-governing towns, *gaṇas*, or tribal areas, and *saṅghas*, or groups of towns and villages constituting a self-governing rural area. This point has been fully examined by Prof. Bhandarkar.[3] He also refers to Pāṇini's Sūtra, *Janapada-lup*, according to which the name of a tribe or people served also as the name of the country occupied by them.

There is also another Sūtra of Pāṇini's, which speaks of 'the *aṅkas* and *lakshaṇas* of *saṅghas*', which shows that the *saṅghas* had their own special mark (*aṅka* or *lakshaṇa*), which latter Mr Jayaswal would identify with the *lānchhana*, or heraldic crest of later Sanskrit. The term *rājāṅka*, the king's mark or the king's arms, also occurs in the *Arthaśāstra*.

There is a passage in the *Vissuddhimāgga* of Buddhaghosha which states that a *shroff* would be able, after examining the coins, to decide which of them were struck at which village, borough, town, mountain, and river bank, and also by what mint master. It is thus clear that every place where coinage was issued had its own distinguishing mark stamped on it, and in confirmation of this, it may be noted that on the majority of *kārshāpaṇas* unearthed at Besnagar the device of a river is prominently noticeable, indicative probably of the Vetrāvati (Betwā).[4]

The bull

There are two marks of very frequent occurrence on punch-marked coins, wherever they are found, which require special notice. These are the bull and the elephant. The bull would appear to be a religious symbol indicating the worship

[1] Class 2. Group I, vars. *f–h*, and Group II, vars. *c–h*. Allan, *op. cit.* pp. lx ff. and 'Notes on the Silver Punch-marked coins in the British Museum', by E. H. C. Walsh, *J.R.A.S.* (1937), p. 624.

[2] Kauṭilya's *Arthaśāstra*, translated by R. Shama Sastri (Government Oriental Library Series). *Bibliotheca Sanskrita*, no. 37, pt. II (Bangalore Government Press, 1915).

[3] *Lectures on Ancient Indian Numismatics*, by R. D. Bhandarkar (Calcutta, 1921), pp. 5–11.

[4] D. R. Bhandarkar, 'Excavations at Besnagar', *A.S.R.* (1913–14), p. 212.

of Śiva, as the bull is a recognised symbol of that deity. It is not, therefore, a mark of classification of the coins, either as regards area or authority, though it would distinguish a separate issue of coins of a particular area, which bear it, from other issues of that area which do not.

With the exception of one coin on which the bull faces left (as in Pl. 231, no. 3, *c*), the bull faces to the right (as in no. 3) on all the coins. The horns of the bull always curve forward, namely to the right. The tusks of the elephant curve upwards. This difference enables these two marks to be distinguished when, as is often the case, only a portion of the mark appears on the coin.

The elephant is the vehicle (*vāhan*) of the god Indra, and has always been regarded in India as a mark of sovereignty. It would appear that it also bears this significance on the punch-marked coins, and that it indicates the coinage issued by the royal mint, as distinguished from that issued by local authorities. That being so, the elephant would be one of the varying fifth marks. That this is, in fact, the case is shown by the coins. Thus, 391 coins of Class A ('hare-hill' area) have a fixed group of four marks: the six-armed-symbol, the sun, the locality mark of a hill designated by a hare on the top of it, and the bull. Of these, 207 also have the elephant, whereas the remaining 184, while having the above fixed group of four marks, have varying fifth marks in place of the elephant. Similarly, 101 coins, constituting Class C ('bull-hill' area), bear a fixed group of four marks, the six-armed-symbol, the sun, the locality mark of a hill designated by a bull on the top of it, and the mark, no. 21. Seventy of these have the elephant as the fifth mark, while the remaining thirty-one coins have four different marks in its place. Similarly, the 147 coins which constitute Class D ('beetle-tank-hill' area) have a fixed group of four marks, the six-armed-symbol, the sun, the locality mark of a hill designated by a tank below it containing two aquatic creatures, and the 'hour-glass' mark, no. 5, above it. Seventeen of these have the elephant as the fifth mark, but the remaining 130 coins, while bearing the same fixed group of four marks, have other marks in place of the elephant. The same applies in the case of other classes on which the elephant occurs. The elephant

The elephant follows the same general type, no. 7, except on one coin, on which it is as shown in no. 7, *b*.

An example of Class A, on which both the bull and the elephant appear, is given in Pl. 234, no. 33, and of two other coins of this class on which other marks appear in its place, in nos. 24 and 25.

The bull appears on 423 of the coins, the elephant on 440, out of which they appear together on 227 coins.

The six-armed-symbol, which occurs on all the coins, exhibits twenty-five varieties, as shown in Pl. 231, nos. 1, *a–v*. The symbol consists of a circle with a pellet in the centre, and round it are six arms, three of which (in some cases two) are arrow-heads, and the others are taurines, ovals, fishes, 'beetles', 'hour-glass', and other objects, as shown. The six-armed symbol

A similar symbol was found by Schliemann on clay whorls in the earliest strata

at Troy. For this reason the writer in previous papers[1] has referred to this mark, for the purpose of distinguishing it, as 'the Troy mark', without, however, implying any connexion in this respect between Troy and the punch-marked coins. The name 'the six-armed-symbol', adopted by Dr Allan is, however, much better, and should now be generally adopted.

The form of this symbol generally remains the same on the same class of coins, though in some cases it varies, showing different issues of those coins.

The variety of the six-armed-symbol on a particular group of coins is of importance, as a possible means of dating the coins, as in the case of Britannia on the penny, on which the particular variety dates the coin from the time of Charles II to the present day. Certain types are found only on the oldest coins, and other types on coins which, from other considerations, appear to be older than others which bear a different variety. This point is considered in the *Memoir*.

Locality marks and the classes of the coins

The coins fall into thirteen fixed classes bearing the same locality mark, and these into sub-classes according to the fifth varying mark. The largest of these is the 'hare-hill' area (Pl. 231, no. 4, Class A), consisting of 485 coins; Class B, bearing other hare-marks (nos. 4, *a–g*) consisting of sixty-five coins; Class C, 'bull-hill' area (no. 3, *b*), 101 coins; Class D, 'beetle-tank-hill' area (no. 9, *c*), 147 coins, and (no. 9, *b*), two coins; Class G, small-hill (no. 9, *e*), three coins; Class I, an undesignated hill (no. 10), twelve coins. As seven of these coins also bear a separate mark of the two 'beetles' in a tank, this class may be connected with Class D; Class J, a hill-with-taurines (no. 11, *a*), seventeen coins; Class K, a hill-with-taurines and 'hour-glass' (no. 11, *b*), three coins; Class L, 'tree-hill' area (no. 12, *a*), twenty-seven coins; Class M, 'island-tank' area (no. 38), forty-six coins; this class also bears the rhinoceros (no. 34); thirty-five coins have the elephant as the fifth mark, the other eleven having other marks in its place; Class N, island-tank-with-taurines (no. 23), eight coins; these coins also bear the mark of a fish swallowing fish (no. 37); Class P, lotus-tank (nos. 51, *a*, *b*), two coins. There are also twenty-four coins, Class Q, which all differ and do not fall under any of the above classes, although they bear some of the marks, other than the locality marks, which appear on these classes. And there are fifty-five coins which cannot be classified, as owing to wear only two marks can be deciphered on two coins and only one mark on the others. There are no Classes E, F and H, as the few coins which were at first classified under these classes were subsequently found to belong to the other classes.

Two island-tanks

The distinction between the two island-tanks is interesting. Sacred tanks with a constructed island in the centre, on which there is always a temple, are common in India. In the one of these on the coins (no. 38) the dot in the centre of the island may possibly indicate the *liṅgam*, the emblem of Śiva, and the wheel in the centre of the other may indicate the *cakra*, the emblem of Vishṇu, the tanks thus representing tanks with temples dedicated to those deities respectively.

[1] *J.B.O.R.S.* (1919), pp. 16–72; *ibid.* pp. 463–94; *J.R.A.S.* (1924), Centenary Supplement, pp. 175–89.

Peshāwar hoard

A hoard of sixty-one coins was found at Peshāwar in 1906 and was described by Dr D. B. Spooner.[1] The writer is unable to agree with Dr Spooner's description of the marks on them, which was based on the assumption that they all represented symbols of the Buddhist religion. Dr Spooner's mark *e* is no. 9, *d* of the present coins, 'beetle-tank-hill', Class D. Forty-four of the coins bear this mark and they are probably, therefore, the coinage of that area. The coins are all of the later class, and bear the Taxila mark on the reverse, and therefore show the long continuance of this locality mark. The mark of a tank, *pushkara*, either in connexion with a hill or by itself, may, as Cunningham suggested,[2] refer to the famous city of Pushkara or Pushkalāvatī (Peukelaotis) near Peshāwar. The coins of Class D may therefore be the coins of that area.

Authority marks

Of the marks which indicate the authority by which the coin is issued, the elephant, indicating the royal mint, has been already mentioned. A banner or standard, which appears to be indicated by the emblem being affixed to a pole, is another such mark. Banners are well-known insignia of corporate bodies in ancient times in India. Such marks are nos. 13, 21, 22, *a*, *b*, *c*; 41, 42, 43, *a*, *b*; 45, 54, 59, 60.

The number of fifth marks, however, is so great that most of them must be the personal mark of the head or representative of the authority at the time of issue, who would change.

Some of the marks which occur on punch-marked coins resemble signs on the Mohenjo-daro seals. Thirteen of the obverse marks on the present coins and fifty-three of the reverse marks, of which twenty-seven appear to be intended for Brāhmī characters, resemble signs on those seals. A Table of these marks is given in the *Memoir*.

Obverse marks occurring on

Certain obverse marks occur on the reverse of some of the coins. These marks are always smaller than the corresponding marks on the obverse, generally about half the size. These marks are Pl. 231, no. 3 (rev. Pl. 232, no. 195, *a*) on one coin; no. 15, *a* (rev. no. 69, *a*) on three coins; no. 24, *b* (rev. no. 11, *b*) on three coins; no. 26 (rev. no. 139, *b*) on one coin; no. 28 (rev. nos. 155, *b*, *c*, *d*, and 156 respectively) on four coins; no. 37 (rev. no. 210) on one coin; no. 42, *a* (rev. no. 135, *a*) on one coin; no. 42, *b* (rev. no. 135, *b*) on one coin; and no. 64 (rev. no. 157) on two coins. In no case do these marks occur on the reverse of a coin which has that same mark on its obverse. It would, therefore, seem that these marks may have been stamped on the reverse of coins of another area for the purpose of authorising their circulation in the area which that mark indicated.

Double-obverse coins

There are sixty-four coins which bear a group of obverse marks on each face of the coin. The groups of marks on one face are older and more worn than on the other. There are also reverse marks, or faint traces of them, on each face. Examples of these coins are shown on Pl. 234, nos. 41, 42, 42, *a*, 43, 46, 46, *a*, 47, 47, *a* and 48. From this it appears that these coins were originally issued with the older of the

[1] *A.S.R.* (1905–6), pp. 150–64.
[2] *C.A.I.* p. 57.

two obverses, with the reverse blank, on which successive reverse marks were impressed. After these coins had become worn from long use they were reissued, the obverse marks of the second issue being stamped on the reverse of the original coin over such worn reverse marks as it bore. The obverse of the former coin became the reverse of the subsequent coin and the reverse marks of that coin were subsequently stamped over it. The earlier and later obverses of these coins can be judged, apart from their relatively worn condition, by the fact that the marks of the later obverse are stamped over the reverse marks of the earlier issue, while the reverse marks of the later issue are stamped over the former obverse marks. The age of these coins is shown by their loss of weight; only two coins weigh 52 gr., the others vary from 47 gr. upwards, fifty of them being under 50·5 gr.

Reverse marks

The reverse marks are of an entirely different character to the obverse marks. They are much smaller and are punched less deeply into the coin, which would naturally be the case if the obverse marks were punched into the metal when heated, as would appear to have been the case. The devices, also, are of a different character. They were the private marks of bankers or money-changers through whose hands the coins passed, as a mark of their having tested its weight or fineness, in case the coin came into their hands again or for the information of others. This practice continued until modern times in the case of various Indian states, whose coinage was of varying weight or fineness. As they were the personal marks of individuals, their number and diversity is very great. Some may be the rebus of a name, as Cunningham suggested,[1] while some of the marks of trees, plants, flowers, animals, and birds may have been the totems of their tribe or class which still survive in connexion with present castes. Others are Brāhmī letters, which may be the initials of names. But, as will be seen from Pls. 232 and 233, the great majority appear to be purely impersonal marks adopted by the individual as his sign. Thus, the most common is the taurine, a protective or propitious mark, like the horse-shoe. There are thirty-six varieties of this mark, and it appears on a greater number of the coins than any of the others. Including varieties of the same mark, 505 marks are shown on Pls. 232 and 233. Of these, 328 marks occur on a single coin only; sixty-nine occur on two coins only; forty occur on three coins; twenty-two occur on four coins; and only thirty-seven occur on more than four coins.

Weight of the coins

The weights of most of the coins vary from 47 to 53 gr. Out of the 347 newest coins having the reverse blank or with only one reverse mark, many of which are in mint condition, only forty-four weigh 54 gr., and there is one coin which weighs 55·16 gr. These weights agree generally with other finds of punch-marked coins.[2]

Smaller hoard from Bhiṛ Mound

One hundred and sixty-six punch-marked coins were found in a single deposit on the Bhiṛ Mound at Taxila, in 1913. In the same hoard was a gold coin of

[1] *C.A.I.* p. 58.

[2] Their metrology is considered in 'Punch-marked Silver Coins. Their Standard of Weight, Age and Minting', *J.R.A.S.* (1937), pp. 293–304.

Diodotus and some jewellery of a distinctively Mauryan character, which point to the later half of the third century B.C. as the date of their currency.[1]

They are of the usual type of the later coins and their chief interest, as already noted, lies in the fact that the coin of Diodotus (248 B.C.) fixes the date when this class of coin was current. Five of the coins are of a different character to the others, and are of a separate coinage. The remaining 161 coins are all of one type and all bear on the reverse the 'Taxila' symbol, though in many cases it is in such a debased form as to be scarcely recognised as that symbol. Examples of the obverse of these coins are shown on Pl. 234, nos. 49, 50, 54 and 56; and of the reverse, nos. 49, *a*, 50, *a*, 51–3, 54, *a*, 55 and 56, *a*.

Obverse marks

The marks on the obverse, as will be seen from the above examples, are remarkably blurred and obscure, making them mostly undecipherable. This will also be seen by comparison with the clearness of the marks on the separate coinage, nos. 57–9, *a*. It is difficult to account for this blurred condition. It is not due to wear, as the hollows are deep in the coin, which are not worn down, and the marks on the reverse are distinct. The obverse marks on the later coins are shown on Pl. 233, nos. 1, *b*, 2 and *a–s*. The only marks decipherable on the 162 coins of the one class are the six-armed-symbol, no. 1, *b*, which can be made out on ten of the coins, and the sun, no. 2, on twenty-one coins. From the general occurrence of these two marks it may be presumed that they were on all these coins, as they are all of the same character. The hill-with-crescent, no. *a*, can be made out on twelve of the coins. Mr Jayaswal has suggested that this mark is the *rājāṅka* or distinguishing mark of Chandragupta;[2] and was continued by his successors. These coins, as also the five coins of the separate type, would thus be coins of the Mauryan empire. This mark does not occur on any of the hoard of the older coins.

Reverse marks

The reverse marks on the later class of coins are of an entirely different character to those on the older class of coins. Whether a single mark or in groups, they are on a definite system and are found to bear a relation to particular groups of obverse marks. Thus all the 161 coins bear only one mark, the 'Taxila mark' on the reverse though in many cases it is in such a debased form as to be scarcely recognisable as such. The different types of this mark are shown on Pl. 233, in figs. A–Q. Type A appears on coin no. 49, *a* on Pl. 234; type B on nos. 50, *a* and 54, *a*; type C on no. 52; type E on no. 55; type F on no. 56, *a*; type G on no. 53; and type J on no. 51.

The 'Taxila mark'

Different obverse marks on five coins

The other five coins bear different marks on the obverse, as shown in figs. *m–s*. One of them has the six-armed-symbol twice, of a different size, which is most unusual, but none of them have the sun. Two have the hill-with-crescent, showing them to be coins of the Mauryan empire. Four of them have a variety of the Taxila mark, three of type O, and one of type N, on the reverse, together with other marks, shown in figs. *t–x*. These other marks are found on other coins of the later class.

[1] *A.S.R.* (1912–13), p. 42.

[2] 'Early Signed Coins of India', by K. P. Jayaswal, *J.B.O.R.S.* (1934), pp. 279–308.

Their weights

The weights of the five separate coins vary from 47 to 50 gr., which is in accordance with the usual standard. The weights of some of the 161 debased coins are unusually heavy, which may be due to the proportion of the alloy, which is very irregular. Thus, while 102 are 53 gr. or under, twenty-five weigh 54 gr.; eighteen weigh 55 gr., six weigh 56 gr., five weigh 57 gr., three weigh 58 gr., and two weigh 59 gr.

Chapter 41. NOTES ON THE PUNCH-MARKED, LOCAL TAXILAN AND GREEK COINS

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Keeper of the Department of Coins and Medals in the British Museum

Paucity of Greek silver coins and complete absence of bilingual tetradrachms

THE COINS found at Taxila fall into four classes corresponding to four periods of occupation of the city. The great majority belong to three groups: the local autonomous coins of the city, the coins of the Śakas and Pahlavas (Parthians) and of their successors the Kushāns. Much smaller in numbers but equally well defined are the coins of the Greek kings who ruled this region from the time of their conquest until supplanted by the Śakas. A noteworthy feature of the latter is the absence of bilingual tetradrachms, which do not seem to have been struck east of the Indus, as their general provenance has already suggested. Indeed, considering the vast numbers of Greek silver coins (drachms) still in existence, surprisingly few were found in Taxila, the people of which at all times seem to have preferred a copper coinage. Copper predominates in the coins found to an overwhelming degree. Apart from the two hoards from the Bhiṛ Mound, silver occurs only in isolated specimens. The coins generally are casual specimens, from site-finds. There are, however, a fair number of hoards, mostly small, which give regular associations and suggest certain troubled periods when hoards were buried for safety or when adding to a private hoard suddenly ceased. A hoard is either a savings deposit added to from time to time or accumulated wealth put into the most portable form and hurriedly buried in an emergency. In either case the owner has failed to return to claim his treasure. It is safe to deduce a period of war or civil disturbance, when we find a number of hoards deposited about the same time. Such occasions in the history of Taxila seem indicated by the burial of punch-marked and local coins at the time of the coming of the Greeks, coins of Azes to Gondophares in the reign of the latter, and again in those hoards in which Kadphises is the latest ruler represented. There are no indications by hoards or otherwise of any such crises in the period of Greek occupation. Hoards of the earliest period are very small, which is probably due to the high value even of copper coins.

Coin hoards and their significance

Long-bar coins

The earliest coins found on the site are the silver bars bearing a wheel-like symbol (*B.M. Cat. of Ancient Indian Coins*, Pl. I, 1–6). One specimen was found in Sirkap and forty-one in the Bhiṛ Mound, including thirty-three in the great hoard of silver from that site. These pieces probably belong to the fourth century B.C.[1]

[1] Cf. pp. 105–6, 110–11 and 751–6. [J. M.]

The provenance of the other known specimens of this type suggests the extreme North-West as their place of origin and their date as pre-Mauryan.

Punch-marked coins: the Taxila symbol

The Mauryan period is represented by isolated finds, not numerous, of punch-marked silver coins, many of them really copper, plated with silver. The latter coins appear to be official issues rather than contemporary forgeries. A number of these isolated specimens bear a punch-mark on the reverse, which is probably the symbol of the Taxila mint, as it occurs on the unique gold coin from Taxila and seems to be confined to punch-marked coins known to come from the North-West. Sirkap was the only site which yielded these coins casually, in addition to a small hoard of six punch-marked pieces at a depth of 16 ft. None were found at the other Taxila sites except the Bhiṛ Mound, which, however, produced two hoards, one of them the most important find of punch-marked coins yet recorded.

Smaller hoard from Bhiṛ Mound

The smaller of these two hoards contained 166 coins, chiefly copper with a slight admixture of silver and bearing the Taxila symbol (i.e. coins of type of *B.M. Cat.* Class 2, Group I). One coin at least was readily recognised as being different from the others, a specimen of *B.M. Cat.* Class 2, Group VI (*A.S.R.* 1912–13, Pl. XLI, 1). With the hoard was a gold coin of Diodotus and jewellery of a Mauryan type. The coins bearing the name of Diodotus have been identified as those of Diodotus II (*C.H.I.* I, pp. 339–40), whose exact date is not known.[1] He was, however, flourishing about 235 B.C. Some time must be allowed for a coin of his to reach Taxila, so that the hoard can hardly have been buried earlier than the last quarter of the third century. The punch-marked coins in the hoard have a very distinct fabric—accurately rectangular with an occasional corner cut off and the edges sharply chopped, a fabric characteristic of the North-West (cf. *B.M. Cat.* Pls. II and III with IV–IX). This is one of the few finds of punch-marked coins of which the earliest possible date of burial is known, and it falls well within the Mauryan period, as indeed do most of the site-finds of these coins from Taxila.

Larger hoard from Bhiṛ Mound

The most important single find came also from the Bhiṛ Mound, a small pot containing 1,167 silver coins and several pieces of jewellery. The silver coins were a Persian *siglos*, tetradrachms of Alexander the Great and of Philip III Aridaeus, thirty-three silver bars with wheel symbol of the type already mentioned, seventy-nine tiny pieces weighing 2–3 gr. and having one punch only (a form of the common six-armed-symbol with taurine and arrow-head alternating, only known from this and a find made at Thathari in the Central Provinces), and the remainder punch-marked silver pieces of the fabric and types of *B.M. Cat.* Class 6. This find consists of two distinct groups, one formed round about 300 B.C. consisting of the Greek coins and the silver bars and a later one consisting of the punch-marked coins.[2] The latter are remarkably homogeneous. Though their number is large, the coins do not contain a great many varieties, and these are closely linked together by symbols, fabric and style. The general evidence of finds suggests that this type of

[1] This identification has been disputed by E. T. Newell, who regards the portrait as that of Diodotus I. See his *Coinage of the Eastern Seleucid Mints* (1938), pp. 248–9. [J.M.]

[2] For a different view, see pp. 105–6, 110–11 and 751–2. [J.M.]

coin was not struck in the North-West, and the find certainly contains none of the types commonly believed to be struck in that area. They do not cover a long period, and their general condition suggests that their owner had just realised his wealth in contemporary coinage, and that the hoard is not an accumulation. The same applies to the small pieces, none of which have been previously found at Taxila. Too much stress need not be laid on the three Greek coins, which were certainly not current at Taxila but had drifted down there from the North-West, just as they still do to Rāwalpindi at the present day. Besides, there is no reason now to doubt (and the general evidence of site-finds from Taxila strongly supports this) that the punch-marked coins are Mauryan. The hoard was deliberately buried, so that its date of concealment is later than the stratum in which it was found (third or fourth century B.C.) might lead one to suppose. Whether it was a family hoard in which the earlier group of coins was added to a generation or two later, or whether the owner invested all his wealth in these two groups of good silver coins we cannot tell, but the presence of the Greek coins indicates a date before which it could not have been buried and the general evidence from our knowledge of punch-marked coins indicates a late date of burial, probably the same as that of the other find late in the third century. Indeed, both may have been buried as late as the early part of the second century B.C., for the only historical reason we know for the abandonment of these treasures is the threat from the Bactrian Greeks.[1] The date of burial was probably not long before the destruction of the Bhir Mound city about 170 B.C.

Local copper coinage of Taxila

The next group of coins is the local copper coinage of Taxila. The finds have confirmed Cunningham's attribution of certain groups of coins and added new types. On the other hand, a number of types said by Cunningham only to be found at Taxila are conspicuous by their absence. That, however, evidences their rarity rather than casts doubt on their attribution. These coins form a well-defined series and must cover the period of autonomy between the decline of the Maurya empire and the Greek occupation.[2] The majority of the coins of Taxila are anonymous; none of the individual *negamā* series, of which all known specimens come from Taxila (*C.A.I.* p. 63), have so far been found in Sir John Marshall's excavations. The symbols characteristic of Taxila are the swastika, a hollow cross, a plant, and a *chaitya* surmounted by a crescent (also called a mountain); of animals, the lion and elephant are the commonest and later, presumably under Greek influence, the horse. The common types are *chaitya* and an arch with a horizontal line above (*B.M. Cat.* Pl. XXXIV, 12), a *chaitya* with a large taurine symbol (*ibid.* Pl. XLIV, 17) described by Cunningham as the commonest coin of Taxila (*C.S.R.*

[1] Our knowledge, however, of the history of this period is next to nil. There may have been many crises in the Maurya and independent periods when hoards such as these would be buried by their owners. Besides the references in the previous note, see Mr Walsh's remarks on pp. 850–1. I agree with Mr Walsh that the punch-marked coins in the smaller hoard are of a later type than those in the larger hoard and must have been struck after the latter, in which they are not represented, was buried. [J. M.]

[2] Cf. pp. 26–7, 110, 756–63, 795–8, 835. The local coinage undoubtedly covers this period of autonomy, but it sems to have started well back in the third century, under Maurya rule. [J.M.]

XIV, p. 21), a swastika with taurines in angle (*B.M. Cat.* Pl. LXIV, 25), a lotus in railing, hollow cross and *chaitya* (*ibid.* Pl. XXXIII, 10), a type formed of a pellet surrounded by four semicircles, which is the characteristic Taxila mint-mark on the silver and the only known gold coin (cf. *C.S.R.* XIV, p. 20). Of animal types those with lion and taurine (*B.M. Cat.* Pl. XLIV, 18) or bull and taurine (*ibid.* Pl. XXXIII, 8) were found in considerable numbers. No hoards of these coins were found but the numerous site-finds show that they were widely used. While these coins are typical of the city's currency about 200 B.C., they seem to have continued in circulation down to the Kushān period, as their provenance and frequently worn condition suggests.

Inscribed autonomous coins

Inscribed coins are, as usual, very rare from the excavations. Three specimens of the *pañca-negama* series (*B.M. Cat.* Pl. XXXI, 11) and one of the 'Golden Hermitage' type (*ibid.* Pl. XXXIV, 4) were found. None of the individual *negamā* series (*ibid.* Pl. XXX, 1–6) nor of the types of *ibid.* Pl. XXXII, 1–10, were discovered: the latter, as Sir John Marshall shows, have special associations with Taxila and their neat style and characteristic North-West fabric suggests an earlier date than the coins of the commoner types. They seem to be only known from the finds made by General Cunningham, most of which are now in the British Museum. The square coins with type 'elephant and lion' were also found, but not in the numbers one would have expected, for they are among the commoner coins of Taxila and were in circulation at the time of the Greek occupation, though their circulation was not confined to Taxila but covered the whole country as far as Kābul.

Evidence of Greek influence in horse type

What are very probably the earliest coins issued under Greek influence, the square pieces on which a horse replaces the lion, were also found very sparingly, although they are not rare coins. The horse is a Greek rather than an Indian type. The lion is also a Greek type, but not one particularly favoured by the Greeks in India, and there is no reason to think it is not the local Indian type in this case, especially as it has the Taxila symbols of *chaitya* and swastika accompanying it. These latter disappear, when the Greeks replaced the lion by the horse, even on the coins on which they appear to have retained the lion (Pantaleon and Agathocles), recognising its association with Dionysus.

A very important find of these coins is recorded by Cunningham from Taxila (*C.A.I.* p. 65); it consisted of eighty-four coins of the early Taxila types (*B.M. Cat.* Pl. XXXII, 1–12), unfortunately not given in detail, twenty-seven coins of the elephant and lion type (*ibid.* Pl. XXXII, 17–22), and nine coins of Pantaleon and fifteen of Agathocles modelled on the preceding. From a hoard of similar constitution Cunningham in 1879 obtained sixty-two specimens (*C.S.R.* XIV, p. 18 and *B.M. Cat.* p. xxxiv). The composition of these hoards and their findspots show (if these are not different versions of one find) what the coin types only suggest, that Agathocles and Pantaleon were the first Greeks to occupy the Taxila region so permanently as to be able to open a mint there. Evidence of a probably transitory occupation of the region by Antimachus Theos is found in a coin of Taxila (*ibid.* Pl. XXXII, 21) countermarked by him with his title and thunderbolt,

Agathocles and Pantaleon

a type otherwise only known on the copper of Demetrius (Whitehead in *Num. Chron.* 1940, Pl. VIII, 2). Dr Tarn (p. 179) says that there is no reason to suppose that Agathocles ever ruled at Taxila. If there is one fact that the coins tell us, it is that Agathocles did rule at Taxila. His coins are also earlier than any of Apollodotus (cf. Tarn, pp. 160–1).

Rare coins of this period

Of rarer coins of this period we may note R.U.C. ch. 39, no. 16, which adds another to the very few specimens of this type—a scene quite unique in coin types. It seems to represent two figures worshipping a tree in a railing and on the reverse is a *chaitya*, a motif associated with Taxila. The facing elephant type (*ibid.* no. 31) with reverse horse and the legend *hirañasame*[1] is not found in sufficient numbers to be dated accurately, but probably belongs to the early second century B.C. The provenance of this specimen is further evidence of the attribution of this type to the region of Taxila. No one familiar with the coins can agree with the suggestion that they were struck at Kāpiśī (Tarn, p. 161). The same legend is found on a few coins with type '*chaitya* and lotus plant' and on a type copied by Agathocles from them.

A few cast coins of the type illustrated in *B.M. Cat.* Pl. XL were found; these were not local issues, but have come from the South-West, where they are much more commonly found.

Inferences to be drawn from Greek coin-finds

No hoards of coins of Greek kings were found, although site-finds were numerous and widely and regularly distributed; no very important deductions can be made regarding the Greek occupation from the coin-finds alone. It is, however, to be remembered that the Greek settlement has not been excavated so thoroughly as the Parthian site. The general nature and proportions of the coins found is quite in keeping with the general impressions one has of the relative amounts of the coinage of the Greek kings. The rarity of silver coins is to be noted, and it is to be remembered that Mauryan silver punch-marked coins continued to circulate in the Greek period, as the stratification of isolated finds shows. From what we know of the distribution of Greek silver generally and of the preference of the Greeks for a silver coinage, this scarcity of silver is further evidence that the Greek population was small and that Taxila was not a Greek mint for silver. A large Greek population would have required much more silver than seems to have been in currency here. Apart from Apollodotus and Menander, whose coins are common everywhere, and Antialcidas and Philoxenus, no Greek kings are represented by considerable numbers of coins.

Coins of Euthydemus and Agathocles

The earliest Greek coins are three of Euthydemus with head of Heracles and reverse a prancing horse. These were struck far from Taxila, but if the early square coins with elephant and horse are the latest autonomous coins of the city, it may be that the horse type was suggested by these pieces. It is, however, more likely that these are the earliest Greek coins and that it was Agathocles who replaced the lion by the horse; and it might be suggested that the A on *B.M. Cat.* Pl. XXXIII, 7, stands for Agathocles, in which case these are the earliest Greek coins struck in

[1] Not visible in plate.

India. It is more probable, as Cunningham long ago pointed out, that it is the monogram TA = mint mark of Taxila; and a mint-mark is more in keeping with the Greek practice than the use of an initial as an abbreviation of a ruler's name. The local coinage bearing the name of Agathocles is represented by several specimens (R.U.C. nos. 43–8). The star which appears above the *chaitya* is to be connected with the star above the horse, which replaces the Indian symbols of *chaitya* and swastika accompanying the lion, and is a further link connecting the horse type with Agathocles. None of the similar issues of Pantaleon were found, but they are known to come from Taxila (cf. Cunningham's find above). No coins were found of these two rulers with the so-called 'dancing-girl' type, who by the way is not dancing but is the highly respectable female found elsewhere on Taxila coins, on the coins of the Yaudheyas, etc. While these coins are too closely connected with Taxila for it to be doubted that they were made by local workmen, they were apparently intended for circulation farther east or south-east. They are bilingual or rather bi-alphabetic; for the difference in dialect in these and other examples of the use of two alphabets on the same coin (cf. *B.M. Cat.* p. cxxix) is too slight for this to be the reason for duplicating inscriptions. The Brāhmī alphabet was not generally in use at Taxila, so far as we know. These coins, therefore, belong rather to the lands of the Audumbaras, Kuṇindas and other districts of the upper Sutlej valley where both alphabets were in use, and are probably evidence that Agathocles extended Greek power to the east of Taxila. At a later date the drachm of Apollodotus profoundly influences the coinage of the Audumbaras and Kuṇindas.

Demetrius and Eucratides

Demetrius is represented by one coin only from the Bhiṛ Mound, and that a Bactrian one; it is noteworthy that few of the commonest coins of the period—the copper of Eucratides—were found. It is still true, as Wilson and Cunningham long ago pointed out, that, while thousands of these are found in the Kābul valley, they are rare in the Panjāb. Only one of his copper coins with reverse *pilei* was found here. It has been suggested (*C.H.I.* I, p. 556) that this became the local type of the Taxila mint under the Greeks, because Liaka Kusūlaka, satrap of Chukhsa, used it and is assumed to have copied it from his Greek predecessors in this locality. But, granting the identity of the Liaka Kusūlaka of the coins which have been found near Rāwalpindi (*J.A.S.B.* 1863, p. 142) with the ruler mentioned in the inscription, it has been forgotten that he does not copy the copper coins, but the small Bactrian silver pieces which are not found in the Panjāb and rarely even in the Kābul valley, and that the original of Liaka Kusūlaka's coinage belongs, not to Taxila, but to Arachosia, Gedrosia and the Paropamisadae. The satrap of Chukhsa did not copy a type of Taxila, and there is, therefore, no reason to believe that the *pilei* is a local type of Taxila (Cunningham, *Num. Chron.* 1889, p. 292; Rapson, *Num. Chron.* 1904, pp. 320 ff.; *J.A.S.B.* LXVIII (extra no.), pp. 23–4). The type is not such a common one, and of the coins found at Taxila only Antialcidas and Archebius have it. The excavations certainly do not reveal that preponderance of the *pilei* type which we should have expected a local mintage to show.

Liaka Kusūlaka

***Pilei* not a local Taxilan type**

Apollodotus I and II

Apollodotus I and II are represented by copper coins only. The absence of the very common silver drachms of Apollodotus I may be noted. The square, or rather rectangular, coin with obverse 'Apollo seated holding bow' and reverse 'tripod' (R.U.C. no. 89; *A.S.R.* 1914–15, Pl. XXVIII, 14) is a very rare variety. Rare also are the small square anonymous pieces with bull and tripod of distinctly Indian fabric (R.U.C. no. 49; *B.M. Cat. of Greek and Scythic Kings*, IX, 13). They have usually been attributed to Apollodotus I, but the form of the tripod and the distinctively Indian fabric point rather to Apollodotus II. The comparatively large number of these hitherto rare coins found at Taxila and their small denomination, which would be unlikely to travel far, indicates a local mintage. The coins of Apollodotus II are of that very distinct fabric which indicates a different mint from the majority of Indo-Greek coins. These must have been struck in India but outside the region of the bull and elephant types. These coins are not found in the Kābul valley and their place of origin has to be sought east of the Jhelum. The same fabric is found with the copper coins of Zoilus II and Dionysius, which have usually come from the Siālkot district (Whitehead, *Num. Chron.* 1923, pp. 308–9) or the Upper Sutlej (Cunningham, *Num. Chron.* 1870, p. 86). The silver coins bearing the name of Zoilus fall into two very distinct groups, one struck west and the other east of the Jhelum. The simplest explanation of these two groups is that there were two kings, the western early and the eastern later. The coins of the various kings of this eastern fabric are also connected by their Apollo types.

Menander

Menander's extensive coinage is typically but not abundantly represented by half-a-dozen drachms and a number of copper coins. Almost half of the latter were the small square pieces with elephant's head and club (R.U.C. no. 51). Menander was not fond of Indian types. None are found on his silver coins or on the great majority of his copper coins. His use of the Taxila type of elephant's head must indicate a local issue, and his other Indian type with wheel and palm was also found at Taxila. This wheel must have a common origin with the wheel found on the *paṁcanekame* coins and the wheel so familiar on Buddhist sculpture. It should be emphasised that the coinage of Menander reveals less sympathy with local or Indian types than that of any Greek king, and some of the deductions made from the wheel on an insignificant little denomination are quite unjustified. Had he wished to proclaim to the world in this way that he was a 'cakravartin' (Tarn, p. 263), he would have chosen a more important coin.[1] His coins leave us in no doubt that his patron deity was Pallas Athene.

Zoilus II and Strato I and II

The most notable coin of Zoilus II is the rare copper piece with type 'Elephant and tripod' (R.U.C. no. 105) of a fabric which would make it pass unnoticed among a lot of early Indian coins. The elephant type suggests a local mint and provides further evidence that Zoilus II coined east of the Jhelum. The coins of the Stratos, which also come as a rule from the east of the Jhelum, are notable for the inclusion of two lead pieces with obverse Apollo, reverse tripod (R.U.C. nos. 63–4)

[1] See also pp. 33–4. The wheel was well established as a Buddhist symbol before the *paṁcanekame* coins were issued. There is no evidence to connect it specially with Taxila. [J. M.]

attributable to Strato II. The same types were used also in this region. The interesting thing about these lead coins is that the same metal was used also by Rājuvula, 158 of whose lead pieces with type 'Lion and Heracles' were found in Sirkap. These lead coins, which are not found elsewhere, must be local issues.

Rājuvula

Rājuvula, as we already know, followed Strato II in the Panjāb, and now we find him copying the latter in using lead pieces as well as copying his much commoner drachms. While the drachms of Strato are found all over the North-Eastern Panjāb, these lead pieces seem to be confined to the Taxila region. It was only late in his reign that his power extended to Mathurā, where a few rare coins show that he copied the types of the hitherto independent local rājas. His son Śoḍāsa continued the Mathurā types but does not seem to have struck coins at Taxila. The copper coins of Strato I from Taxila produced a number of the hitherto rare 'Heracles and Nike' type (*B.M. Cat.* Pl. XI, 4).

Meaning of 'India' to the Greeks

The phrase 'Greeks in India' has proved very misleading to those who think of India in this context as the India of to-day. As coins have been made the basis of much that has been written on the subject, it may be as well to get a clear idea of what we really know. The name India to the ancients meant the ancient Persian province of India, and did not apply beyond the valley of the Indus on the east, while it included the lands westward as far as the Hindu Kush. After the treaty between Seleucus and Chandragupta Maurya, Arachosia, the Paropamisadae and part of Gedrosia, that is, the southern half of Afghānistān and Northern Balūchistān, passed to the Maurya Empire. The old Achaemenid province of India became the North-West Province of the Maurya Empire with its capital at Taxila. In Mauryan times this was the country of a square coinage in silver and copper, i.e. of definitely rectangular well-made pieces of readily recognisable fabric. Ancient coins from other parts of India are usually round and, when not round, are not so definitely square or rectangular as those from the North-West. Square silver and copper coins are still found in Balūchistān and the Kābul valley. They are found, as Cunningham says, from Sistān and Kābul eastwards. The region was a land which had an Indian population in Vedic times and which never lost its Indian character under Persian rule, as references in the *Zend Avesta* and Herodotus show. When he crossed the Hindu Kush, Alexander found an Indian rāja, Śaśigupta (Sisikottos), ruling here, just as Seleucus later found Subhagasena (Sophagasenus). This was the area of the Kharoshṭhī alphabet and, as the coins and the few inscriptions show of an Indian Prākṛit. From the earliest times this region had been a homogeneous unit and the geographical and climatic conditions which fixed its boundaries under the Persians, Alexander and the Mauryas, undoubtedly operated in confining the Greeks to this area.

Characteristic types of the Kābul valley and Gandhāra

The Kābul valley was noted for its cattle. Alexander had herds of them sent home, just as Hajjaj, the great Omayyad governor, had them brought to Irak a thousand years later. It was also celebrated, as it still is, for its grapes, as the Dionysian type of Agathocles and the story of the Nysaeans show. The bull was the characteristic animal of Gandhāra and very soon found a place on the

copper coins issued by the Greeks in that region. The Greeks probably became acquainted with the elephant—the war-elephant at least—as soon as they crossed the Hindu Kush, but it was not until they came farther east to the Indus valley, where it was already the characteristic type of the local coinage, that they adopted it as a coin type. Not only was the bull the characteristic animal of Gandhāra, but it was also the sacred one. Under the influence of the Gandhāra sculptures, which are of a later date than we are at the moment concerned with, we are too accustomed to think of the region as always wholly Buddhist. There is no evidence at all from the coins to suggest that Buddhism was a predominant religion here. An interesting light is thrown on this by the unique gold coin (*B.M. Cat. Greek and Scythic Kings*, Pl. XXIX, 15) which shows on one side a Greek city goddess labelled in Kharoshṭhī for the benefit of the natives 'the city goddess of Pushkalāvatī' and on the other a bull labelled for the benefit of those who read Greek TAYPOC, i.e. the 'sacred bull'. The lunate sigma in the legend prevents us putting this coin earlier than the first century B.C., but we only quote it as evidence that the bull was a sacred animal at Pushkalāvatī. It is no doubt the same bull that appears on the coins of V'ima Kadphises, who placed Śiva beside it to make its significance quite clear. In placing a bull on so many of their coins the Greeks consciously or unconsciously used a local type of as much religious significance as their own type of Pallas. The local coin types of the Greeks in India can all be accounted for west of the Jhelum. The small group of coins already mentioned, Apollodotus II, Zoilus, Dionysius, Strato II, which alone may have been struck farther east, have purely Greek (Apollo and Athene) types.

Elephant type of Taxila

The bull may be taken as a type of Gandhāra and the elephant, as Sir John Marshall discusses elsewhere (pp. 758–9), of Taxila. These types, with the rare wheel, are the only Indian types added to the Greek series, and there is no necessity to cross the Indus or the Upper Jhelum to explain them. They are more common on the copper coinage, for this was the money in ordinary circulation. In view of the high value of money in those days even a drachm had considerable purchasing power, and would not be in everyday use. Silver, indeed, was largely used for hoarding, particularly among the Indians. Greek types were retained on the silver because these were the currency of the wealthier Greeks. The source of silver was in Afghānistān, not in the Panjāb, and the multitude of coins that still exist show that the Greeks made full use of the mines. It also seems probable, though this is not certain, that the silver was not carried far to be minted.

Money of Apollodotus I

After some experiments in weight standards Apollodotus I discovered the proper weight for a drachm which could circulate freely without being melted down, and when he chose the types of elephant and bull, the coin became very popular among the Indians, where the want of a convenient silver coin had been felt since the decline and collapse of the Mauryas. Like the stater of Philip II, the penny of Edward I, the English sovereign, and numerous other coins, the drachm of Apollodotus circulated far beyond the boundaries of his kingdom, as did those of the same quality and weight struck by Menander, Antialcidas and Antimachus.

Diffusion of Greek coinage

It is not necessary to go over the ground recently and ably covered by Whitehead (*Num. Chron.* 1923 and 1940), with whom everyone familiar with the difficulties of interpreting the evidence will agree. The evidence from coins shows that the Greek dominions in India were confined roughly to the present North-West Frontier Province and to the Attock, Rāwalpindi and Jhelum districts of the Panjāb.[1] A few rulers, Apollodotus II, Zoilus and Strato, struck coins of a different fabric which seems to indicate rule in the upper Chenāb valley also. Finds of drachms (only) mainly of Apollodotus, Menander and Antialcidas at such places as Rohtak and Sonepat are not evidence of Greek rule but of the popularity of their drachms, and such finds can easily be paralleled in other series of international currencies—for example, the great find of Egyptian gold coins made at Broach in 1882 does not show that the Mamluks ruled there but that the excellence of their gold coins took them as far afield as India. Further evidence of the commercial success of the Greek drachms is seen in the fact that the Audumbaras and Kuṇindas were led to imitate them. It was purely commercial reasons (cf. the much-discussed passage in the *Periplus*) that took drachms of Apollodotus and Menander to Barygaza (Broach), just as Venetian ducats went to that important commercial centre in the Middle Ages (cf. the Broach find already mentioned). Similarly, odd Greek coins have been found as far south as Mathurā but these are not evidence of Greek rule. We know from the coins that Mathurā was in the hands of the local rājas till its conquest by Rājuvula, who, like his son Śoḍāsa, copies the local type on his coins. Had the Greeks been already here, we should have had a break in the Hindū coinage earlier. It is true we have Dr Tarn saying (p. 323) that 'according to the coins, the last Greek king to rule in Mathurā itself was Strato I in conjunction with his grandson' and giving as his authority *C.H.I.* 1, p. 575, which actually says: 'Rājūla struck coins in imitation of Strato I and II, the last of the Yavana kings to rule in the E. Panjāb.' Apart from the fact that Mathurā is not in the Panjāb, Eastern Panjāb meant to Cunningham (Rapson's authority) what we should now call the North-Eastern Panjāb. Dr Tarn's statement is quite without foundation, and the coins supply no evidence of Greek rule in Mathurā. It was from the modern Afghānistān that Greek coins first came to this country, and the numbers that have been found in the North-West Frontier Province in the last century is much greater than in the Panjāb. With the single exception already mentioned (Agathocles and Pantaleon), the Greeks never used the Brāhmī alphabet, which indicates that they struck no coins outside of the Kharoshṭhī district. The known finds of tetradrachms (from Kābul, Tatta, Chārsada, etc.) point to the same conclusion as do the few definite references to Greeks, like the Besnagar inscription, the recently discovered one mentioning Menander, and the Theodorus vase from Swāt. The Greek idea of a coin—a round piece with a ruler on one side and a religious type on the other—profoundly influenced Indian coinage, but not directly. It was through the Kushāns and their coinage that the Greek type became predominant down to the Muhammadan conquest throughout India even as far

Mathurā not under Greek rule

[1] Cf. p. 32, n. 4 *supra*.

as Ceylon, where the type of Parākramabāhu in the twelfth century can be traced back to Kanishka.

The *Milindapañha*

In the absence of literary evidence of Indian interest in the Greeks much has been made of the *Milindapañha*. The unusual corruption of Menander to Milinda is sufficient evidence of how far the author was from the Greeks in place and time. Almost the only historical evidence that could be deduced from the book is that Milinda was king of the Yonakas or Greeks. Whether Siālkot be Sāgala or not—and there are not the great mounds of ruins there we should expect for such an important site—it has not produced the coins of Menander one would expect from his capital. If we are to lay any stress on the description of Milinda's capital in the Pali text, it suggests it ought to be sought in the hills rather than in the plains.

Yonaka

A few words about *Yonaka* are justified since Dr Tarn has suggested it may be a loanword from a Greek Ἰωνακός. It is a perfectly good Indian word. The Persian *Yauna* (Ionian) passed into Prākṛit as *Yona* and soon had the very popular suffix *-ka* added without a change of meaning. The growth of the use of *-ka* in Sanskrit is traced by Wackernagel (*Altindische Grammatik*, II, § 45), and its great popularity in Prākṛit emphasised by Pischel (*Gramm. d. Prakritsprachen*, § 598). This is not the place to discuss *Yavana*, which is a learned Sanskrit formation from *Yona*. *Yonaka* and *Yavana*, originally Greek, soon came to mean foreigners, and just as in medieval times *Yavana* was applied to Muslims, so in earlier times it was applied to Śakas and Kushāns.

Conclusions

We are, however, travelling too far from the coins. The Greek coins from Taxila are quite representative of the Greek rulers of the region. The complete absence of tetradrachms and the rarity of silver suggests that this metal was mainly struck and circulated farther west than Taxila, while the copper coins are mainly of local types. Nevertheless, the close association of the elephant with Taxila and the large proportion of elephant types among the coins found here indicate that Taxila was the mint of Apollodotus, Menander, Heliocles, Lycias and Antialcidas. We know definitely that Antialcidas ruled at Taxila, and this must have been where he had his mint. The reverse type of his silver coins on which an elephant pays homage to Zeus Nikephoros commemorates his rule over this region. Taxila, however, has not yielded the quantity of Greek silver that sites farther north-west such as Chārsada or Chārikār have. It is from sites like these and from the Kābul valley generally that the Rāwalpindi coin dealers get their stocks. We owe a great deal to these men and to General Cunningham, who first encouraged them to look out for coins, and it is unfortunate that an Indian provenance has been assumed for much that has passed through their hands—much that has come down out of Afghānistān and might otherwise have been melted down or taken north to Russian Central Asia.

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